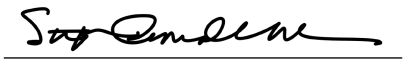
Attachment 1

Expert Report



Stephen Ansolabehere

May 20, 2022

I Statement of Inquiry and Executive Summary

1. I have been asked to evaluate (a) the distribution of Hispanic and Black voters in Texas to determine whether additional majority-minority congressional districts could be drawn, (b) the distribution of Hispanic and Black voters in Texas to determine whether additional majority-minority State House districts could be drawn in Harris and Tarrant Counties, and (c) racially polarized voting and minority representation in Texas's congressional districts and in Texas's State House districts in Harris and Tarrant Counties. I am compensated at the rate of $600 an hour. My compensation is in no way contingent upon my conclusions; I have been given complete autonomy in developing my analysis and conclusions, and all conclusions reached are my own.

2. Nearly all of the population growth in the State of Texas over the past decade is minority population. Since 2010, the population of the State of Texas has grown by nearly 4 million people: 95 percent of those additional people are minorities. Additionally, most of the growth in the adult citizen population – the potential electorate – since the 2010 census is minority. Texas added 3.3 million citizens of voting age, and 2.7 million of them were minorities. As a result, the percent of the Citizen Voting Age Population (CVAP) in the State of Texas that is white shrank from 57.7 percent a decade ago to 50.8 percent today. Yet, the State of Texas created only 13 Congressional Districts (CDs) where minorities will be able to elect their preferred candidates in its Enacted Map, as opposed to 25 CDs where whites will have the ability to elect their preferred candidates.

3. I conclude that the congressional map enacted by the State of Texas, Senate Bill 6 ("SB 6" or the "Enacted Map"), failed to create at least five possible districts in which minorities could have the opportunity to elect their preferred candidates in areas of the State where voting is racially polarized. Four of these CDs would be new majority-minority CDs: two in South and West Texas and one each in Dallas-Fort Worth and Harris County. Additionally,

CD-23 in SB 6 is majority-minority but is not a district in which minorities will have the opportunity elect their preferred candidates. The Demonstration Maps I've developed below show that CD-23 can be easily configured to allow minority voters the opportunity to elect their preferred candidates.

4. Demonstration maps presented in this report show that the State of Texas could have created at least 5 additional CDs where minorities make up a majority of the electorate, where voting is racially polarized, and where minorities would have the ability to elect their preferred candidates – for a total of 18 minority-opportunity CDs. Demonstration Map 1 presents 2 additional majority Hispanic CVAP districts in South and West Texas where Hispanics would have the opportunity to elect their preferred candidates. This map also reconfigures CD-23 to provide Hispanics an opportunity to elect their preferred candidates, and it draws one additional district each in Dallas-Fort Worth and Harris County that is majority Black plus Hispanic CVAP and in which minorities have the ability to elect their preferred candidates. Demonstration Map 2 is identical to Demonstration Map 1 in South and West Texas, but it draws one additional majority Hispanic CVAP district each in Dallas-Fort Worth and Harris County in which Hispanics will have the opportunity to elect their preferred candidates. Both Demonstration Maps show that the State of Texas could have created at least five more CDs than in the Enacted Map in which minorities are the majority of the CVAP and would have the opportunity to elect their preferred candidates.

5. In addition I conclude that the Texas State House district map failed to create additional minority House Districts (HD) in Harris and Tarrant County. The Demonstration Map shows that in Harris County it is possible to draw a reasonably compact majority Hispanic HD in southeastern Harris County. In Tarrant County the Enacted House District Map has the least compact districts in the entire State, and those districts divide the substantial minority population on the east side of the City of Fort Worth. The Demonstration Map makes

more compact versions of HD-90 and HD-95, both of which are minority districts. That improvement in the map results in the emergence of a compact minority district representing the east side of Fort Worth, Demonstration HD-94.

II Qualifications

6. I am the Frank G. Thompson Professor of Government in the Department of Government at Harvard University in Cambridge, MA. Formerly, I was an Assistant Professor at the University of California, Los Angeles, and I was Professor of Political Science at the Massachusetts Institute of Technology, where I held the Elting R. Morison Chair and served as Associate Head of the Department of Political Science. I am the Principal Investigator of the Cooperative Congressional Election Study (CCES), a survey research consortium of over 250 faculty and student researchers at more than 50 universities. I also directed the Caltech/MIT Voting Technology Project from its inception in 2000 through 2004, and served on the Board of Overseers of the American National Election Study from 1999 to 2013. I am an election analyst for and consultant to CBS News' Election Night Decision Desk. I am a member of the American Academy of Arts and Sciences (inducted in 2007). My curriculum vitae is attached to this report as Appendix B.

7. I worked as a consultant to the Brennan Center in the case of *McConnell v. FEC*, 540 U.S. 93 (2003). I have testified before the U.S. Senate Committee on Rules, the U.S. Senate Committee on Commerce, the U.S. House Committee on Science, Space, and Technology, the U.S. House Committee on House Administration, and the Congressional Black Caucus on matters of election administration in the United States. I filed an amicus brief with Professors Nathaniel Persily and Charles Stewart on behalf of neither party to the U.S. Supreme Court in the case of *Northwest Austin Municipal Utility District Number One v. Holder*, 557 U.S. 193 (2009), and an amicus brief with Professor Nathaniel Persily and others

in the case of *Evenwel v. Abbott*, 138 S.Ct. 1120 (2015). I have served as a testifying expert for the Gonzales intervenors in *State of Texas v. United States* before the U.S. District Court for the District of Columbia (No. 1:11-cv-01303); the Rodriguez plaintiffs in *Perez v. Perry*, before the U.S. District Court for the Western District of Texas (No. 5:11-cv-00360); for the San Antonio Water District intervenor in *LULAC v. Edwards Aquifer Authority* in the U.S. District Court for the Western District of Texas (No. 5:12-cv-00620); for the Department of Justice in *State of Texas v. Holder*, before the U.S. District Court for the District of Columbia (No. 1:12-cv-00128); for the Guy plaintiffs in *Guy v. Miller* in the First Judicial District Court in Carson City, Nevada (No. 11-OC-00042-1B); for the Florida Democratic Party in *In re Senate Joint Resolution of Legislative Apportionment* in the Florida Supreme Court (Nos. 2012-CA-412, 2012-CA-490); for the Romo plaintiffs in *Romo v. Detzner* in the Circuit Court of the Second Judicial Circuit in Florida (No. 2012-CA-412); for the Department of Justice in *Veasey v. Perry*, before the U.S. District Court for the Southern District of Texas (No. 2:13cv00193); for the Harris plaintiffs in *Harris v. McCrory* in the U.S. District Court for the Middle District of North Carolina (No. 1:13-cv-00949); for the Bethune-Hill plaintiffs in *Bethune-Hill v. Virginia State Board of Elections* in the U.S. District Court for the Eastern District of Virginia (No. 3:14-cv-00852); for the Fish plaintiffs in *Fish v. Kobach* in the U.S. District Court for the District of Kansas (No. 2:16-cv-02105-JAR); for intervenors in *Voto Latino, et al. v. Hobbs*, in the U.S. District Court for the District of Arizona (No. 2:19-cv-05685-DWL); for intervenors in *Johnson v. Wisconsin Elections Commission*, in the Wisconsin Supreme Court, (No. 2021AP1450-AO); for the Senate Majority Leader in *Harkenrider v. Hochul* in the New York Supreme Court (No. E2022-0116CV); and for the plaintiffs in *Black Voters Matter Capacity Building Institute, Inc. v. Lee* in the Circuit Court for the Second Judicial Circuit in and for Leon County, (No. 2022-ca-000666). I served as an expert witness and filed an Affidavit in the North Carolina State Board of Elections hearings regarding absentee ballot fraud in the 2018 election for Congressional District 9 in North Carolina. I served as a consulting expert to the Arizona Independent Redistricting

Commission in 2021. I have been accepted as an expert in every matter in which I have been proffered as an expert witness.

8. My areas of expertise include American government, with particular expertise in electoral politics, election administration, representation, redistricting, political geography, and public opinion, as well as statistical methods in social sciences and survey research methods. I have authored numerous scholarly works on voting behavior and elections, the application of statistical methods in social sciences, legislative politics and representation, and distributive politics. This scholarship includes articles in such academic journals as the Journal of the Royal Statistical Society, American Political Science Review, American Economic Review, the American Journal of Political Science, Legislative Studies Quarterly, Quarterly Journal of Political Science, Electoral Studies, and Political Analysis. I have published articles on issues of election law in the Harvard Law Review, Texas Law Review, Columbia Law Review, New York University Annual Survey of Law, and Election Law Journal, for which I am a member of the editorial board. I am associate editor of the Harvard Data Science Review, and have served as associate editor of the Public Opinion Quarterly. I have coauthored three scholarly books on electoral politics in the United States, The End of Inequality: Baker v. Carr and the Transformation of American Politics, Going Negative: How Political Advertising Shrinks and Polarizes the Electorate, and The Media Game: American Politics in the Media Age. I am coauthor with Benjamin Ginsberg, Hahrie Han, and Ken Shepsle of American Government: Power and Purpose.

9. The analysis in this report, including the three demonstration maps discussed, is my own. I was aided by a research assistant, Kevin DeLuca. The graphical representations of then enacted maps and my demonstration maps that are included within this report were generated in consultation with professional geographer and demographer Blake Esselstyn, GISP, AICP.

III Sources and Methods

10. Population and election data used in this report come from the Census Bureau and the Texas Legislative Council. These data are located at https://data.capitol.texas.gov/.

11. I examine all statewide general elections for State of Texas offices from 2016, 2018, and 2020. These are: US President, US Senate, Governor, Lt. Governor, Attorney General, State Supreme Court, Court of Criminal Appeals, Agricultural Commissioner, Comptroller, Land Commissioner, and Railroad Commissioner. For majority-minority CDs, I analyze the election results for US House of Representative in the precincts of each majority-minority CD in the Prior Map that are incorporated into the analogous CDs in the Enacted or Demonstration maps. Where there are substantial changes in a CD's boundaries, the US House election results for CDs under the Prior Map may cover only a fraction of the Voting Tabulation Districts (VTDs) in a newly configured CD.[1] As a result, US House election results in the Prior CDs give only a partial picture of voting behavior in the districts in the Enacted and Demonstration Maps.

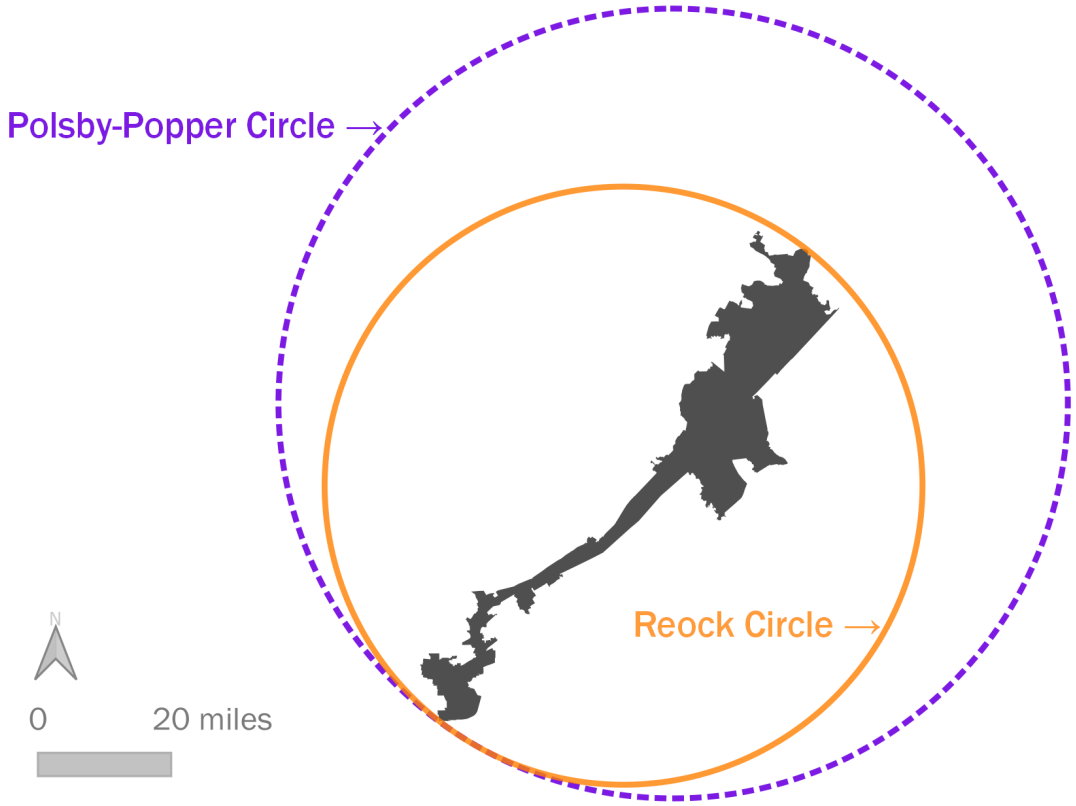
12. Precinct numbers of the locations of incumbents who represent minority districts were provided to me by counsel.

13. I examine two measures of geographic compactness: area dispersion (Reock) and perimeter dispersion (Polsby-Popper). The Reock measure is the ratio of the area of a district to the area of a circle whose diameter is the same as the length of a district. It ranges from 0 to 1, with lower values being less compact. It penalizes long, narrow districts. A district that is a perfect square will have a Reock score of 0.637. The Polsby-Popper measure is the ratio of the area of a district to the area of a circle whose perimeter is the same

[1]The State of Texas participates in the US Census Bureaus Voting Tabulation District program, which creates precinct geographies (VTDs) to align with the geographies of Census blocks, the lowest geographic level at which Census reports population data.

length as the perimeter of the district. It ranges from 0 to 1, with lower values being less compact. It penalizes shapes that have many indentations or highly irregular borders. A district that is a perfect square will have a Polsby-Popper score of 0.785. There are many measures of geographic compactness, but Reock and Polsby-Popper are the two most commonly used measures of compactness in research on district structure and have been long used in scholarship. As a reference, CD-35 in the Prior Map has a Reock measure of 0.097 and a Polsby-Popper measure of 0.055. In other words, the area of Prior CD-35 is about 10 percent of the area of a circle whose diameter is the length of that district. The area of Prior CD-35 is approximately 6 percent of the area of a circle whose perimeter is the same as the perimeter of this district.

Figure 1: Demonstration of Roeck and Polsby-Popper Compactness Measures



14. To measure the electoral preferences of racial groups I employ both ecological regression (ER) and ecological inference (EI) analyses. Both techniques use the relationship between electoral outcomes at the precinct level and the racial composition of precincts in a particular district, county, or other area of interest to infer the vote preferences of different racial groups. ER has the longest lineage of use for studying racial voting patterns. The method was developed in the 1950s by Leo Goodman and has been relied on in litigation under the Voting Rights Act since the mid-1980s. The Supreme Court of the United States in *Thornburg v. Gingles* recognized ER as an acceptable method for ascertaining the cohesiveness of racial groups in their voting and the extent of racially polarized voting. This technique estimates the best fitting linear relationship between the percent vote for a candidate or party and the percent of the population or electorate that is of a given group. Using that relationship, ER allows researchers to estimate the percent of people of a given group who vote for a given candidate or party.

15. In implementing ER, I analyze data at the precinct level. I aggregate blocks and, for the CVAP, block groups to the precinct. Where block groups are split across precincts, I follow best practices and allocate the CVAP counts in block groups according to the share of the VAP that is in each precinct. In each ER conducted using general elections, the dependent variable is the share of the two party vote won by the Democratic candidate. In each ER conducted using primary elections, the outcome is the percent of the total primary vote won by a given candidate. I conducted the ER analyses weighting by precinct turnout. I also estimate the ER analyses following the approach of Grofman and Migalski (1988) and correct for the level of turnout of different groups. Specifically, a first stage regression is run to measure each group's electoral participation and results are weighted to the estimated participation rates of the groups. In general elections, I find that the Grofman-Migalski approach is similar to the turnout weighted approach. However, in primary elections, where turnout is very low, I find substantial differences between these approaches.

16. Ecological Inference (EI) was developed by Gary King in the 1990s. It relies on the same general approach and assumptions as ER, but estimates the voting preferences of racial groups at the precinct level and aggregates to the district level. EI uses additional information from homogeneous precincts (precincts that have a very high percent of one group) to bound the estimates at the precinct level. The two methods diverge somewhat because EI gives more weight to the homogeneous precincts, which can be relatively rare, and less weight to precincts that have more equal or typical population distributions. Also, ER does not attempt to make precinct-level estimates. EI has also been widely used in cases involving the Voting Rights Act.

17. In implementing EI, I analyze data at the precinct level. As with the ER analysis, I aggregate blocks and, for the CVAP, block groups to the precinct. Where block groups are split across precincts, I follow best practices and allocate the CVAP counts in block groups according to the share of the VAP that is in each precinct. In each EI conducted using general elections, the dependent variable is the share of the two party vote won by the Democratic candidate. In each EI conducted using primary elections, the outcome is the percent of the total primary vote won by a given candidate. The EI estimation procedure estimates the turnout rate and vote preference of each group. ER is often preferred to EI for computational ease and because the two methods almost always yield qualitatively similar answers, if not the exact same results.[2] In the context of primary elections, EI appears to be a superior method because it allows for a more reliable adjustment for the differential turnout of racial groups in primaries. Differential turnout is far more consequential in primaries than in general elections.

[2]The EI analysis requires an iterative "hill climbing" estimation: an initial estimate is made and then the algorithm gauges which direction to "step" and how big of a step to make. The estimate is updated and a new step is calculated. That procedure continues until the steps are arbitrarily small or the maximum number of steps has been reached. The default for the EI program is 1,000 steps. Practical experience has revealed that some situations take many more steps to reach an accurate solution. I set the number of steps at 20,000, and all instances converge to an answer in fewer steps.

18. I analyze primary elections to ascertain whether Black and Hispanic voters coalesce in districts where Blacks plus Hispanics are the majority of the adult citizen population. The standard approach in the field of political science for assessing whether Blacks and Hispanics coalesce examines general elections, rather than primary elections.[3] Primaries are viewed as fundamentally different from general elections, especially because policy differences between the candidates are much less within a party than they are between parties and, consequently, personality and other factors matter much more in primaries, when the policy choices and implications for specific groups are not as distinctly drawn.[4] Primaries are further complicated because turnout is typically very low, because the choice of which primary to vote in is itself a form of political choice,[5] and because the large number of candidates in many primaries makes the application of criteria from general elections difficult to apply to primary elections. In my professional judgment, primary elections are not a reliable indicator of coalescence in political preferences of minority voters. However, courts have in some cases relied on primary elections, in addition to general elections, when weighing evidence concerning racial voting patterns. For completeness of this analysis, I provide an analysis of coalition behavior of Black and Hispanic voters in primary elections.

19. The analysis of primaries proceeds by, first, estimating the preferred candidate of Black and Hispanic voters in Democratic primaries, and, then, determining whether the groups preferred the same candidates. I consider a candidate to be the preferred candidate of a racial group if that candidate was preferred by a plurality of that group (i.e., that person is

[3]See, for example, Rene Rocha "Black-Brown Coalitions in Local School Board Elections," *Political Research Quarterly* 60 (2007): 315-327 and Karen Kaufmann, "Black and Latino Voters in Denver: Responses to Each Other's Political Leadership," *Political Science Quarterly* 118 (2003): 107-126.

[4]See, Shigeo Hirano and James M. Snyder Jr., *Primary Elections in the United States* (Cambridge University Press, 2019).

[5]People of a racial group who vote in a party's primary may not be representative of the group's preferences as a whole. For example, whites who vote in the Democratic primary in a heavily Republican district are likely not representative of the preferences of whites in the district overall. Relatedly, if most Black and Hispanic voters choose to vote in the Democratic primary rather than the Republican primary, that is itself a sign of political cohesion, even if those groups favor different candidates as their top choice.

the candidate most preferred by that group in the primaries).[6] In some instances, the shares of a group's primary election vote received by the top two candidates are very similar and not statistically different from one another. In these instances, a group is classified as having no "Single Preference." If a group has no clear first-choice candidate, that group is listed as not having a "Single Preference." Among the cases in which there is a singular preference for a group, I determine whether that preference is the same as for the other group. I use EI to estimate group preferences in 21 primary elections. In most instances, Hispanic voters and Black voters in fact have a single most-preferred candidate, as shown in the "Single Preference" columns in Table 16. I classify Blacks and Hispanics as coalescing in the primary if both groups have the same first-choice candidate.

20. This report presents the results of the analysis of population, compactness, racial voting patterns in general and primary elections, and general election district performance.

IV Findings Related to the Congressional District Map

A. Population Growth

21. Over the past decade, the population of the State of Texas grew by 4 million people, an increase from 25,145,561 to 29,145,505 people. That was the largest increase in total population of any state in the United States since 2010, and it earned the State of Texas two additional congressional districts in the decennial reapportionment.

22. Nearly all of the population growth in the State of Texas was people who identify as members of Hispanic, Black, Asian, Native American, or other non-white racial groups. Of the 3,999,944 additional people in the State of Texas, only 4.7 percent (187,252) were white Non-Hispanics. See Table 1. As a result, the overall racial composition of the population

[6] See *Ruiz v. City of Santa Maria* 160 F.3d 543 (9th Cir. 1998).

of the State of Texas became less white. At the beginning of this past decade 45.3 percent of the population of Texas was white Non-Hispanic, but by 2020, the white Non-Hispanic population had shrunk to 39.7 percent of the State's population. Hispanics alone have drawn even with white Non-Hispanics among the total population: Hispanics are now 39.3 percent of the total population in the State of Texas. Minorities of all groups combined are now over 60 percent of the population of the State of Texas. See Table 1.

23. The eligible electorate showed a similar shift. The CVAP is the best measure of the eligible electorate, and it is used as the standard for determining whether CDs are majority-minority districts. Based on the 2006-2010 American Community Survey (ACS), which was the data used in the prior redistricting cycle to gauge CVAP, there were 15,276,965 adult citizens in the State of Texas a decade ago. Of these people, 57.7 percent were white Non-Hispanics. According to the 2015-2019 ACS, the CVAP of the State of Texas grew by almost 3 million people to 18,181,330 people. At that time, 51.6 percent of adult citizens in Texas were white Non-Hispanic, and 48.4 percent identified with one or more racial or ethnic minority group. According to the 2016-2020 ACS, over the past decade, the CVAP of the State of Texas grew by 3.3 million people and is now 18,578,830. Of these people, 50.8 percent are white Non-Hispanics, and 49.2 percent identify with one or more racial or ethnic minorities.

24. About half of the growth in total population and more than half of the growth in CVAP in Texas was of people who identify as Hispanic. Of the 4 million additional people in the State of Texas since 2010, 1,980,796 are Hispanics. See Table 1. Of the nearly 3.3 million additional adult citizens in the State of Texas since 2010, 1,782,070 are Hispanics according to the 2016-2020 ACS. Non-Hispanic Blacks account for about 13 percent of the CVAP; and Asians are about 3.8 percent of the CVAP. See Table 2. The ACS 2015-2019, which were available to the State Legislature at the time of redistricting, show similar growth in the

minority populations in the State of Texas. See Table 2.

25. Equal population requires that districts have 766,987 people, plus or minus 1. Most congressional districts in the Prior Map were overpopulated, reflecting the substantial growth in population of the State overall, and the resulting apportionment of two additional congressional seats to Texas based on the 2020 census.

26. Growth occurred unevenly across CDs in the state. Eight CDs in the Prior Map had populations below the equal population level. The most underpopulated district in the map was CD-13 in the panhandle of Texas. It needed an additional 59,517 people to meet the equal population requirement. Neighboring CD-19 was also underpopulated, needing an additional 35,563 people. CD-1, along the Texas-Louisiana border, was underpopulated by 45,624 people.

27. Five CDs with majority-minority populations were also under-populated. CD-16, CD-27 and CD-34 in south and southwest Texas were underpopulated by 9,625 people, 27,290 people and 55,136 people, respectively. CD-29 in Harris County was underpopulated by 49,732 people. CD-33, which spans Dallas and Tarrant Counties, was underpopulated by 46,343 people. These CDs had to be reconfigured or have their footprint expanded in order to have 766,987 people.

28. The Prior Map also had many CDs that were substantially overpopulated. This was particularly true of four areas in the map: the Houston area (Harris and Fort Bend Counties), Austin (Travis and Williamson Counties), Dallas-Fort Worth (Dallas, Tarrant, and surrounding counties), and San Antonio (Bexar County).

29. CD-22 in Harris and Fort Bend Counties was the most overpopulated district in the

Prior Map, with an excess of 205,322 people. Also in Harris County, CD-2 was overpopulated by 47,717 people; CD-7, by 33,924 people; CD-18, by 29,921 people; CD-36, by 12,712 people. CD-10, which spanned the region from the western part of Harris County to northeastern Travis County, was overpopulated by 170,995 people.

30. In the Austin area, CD-31, which contained Williamson and Bell Counties to the north of Travis County, was over-populated by 166,785 people. CD-35, which extended from Austin to Bexar County, had an excess of 65,409 people.

31. The Dallas-Fort Worth area also experienced substantial population growth, resulting in large population excesses in some districts. The northern suburban areas of Dallas-Fort Worth contained CD-3 (Collin County) and CD-26 (Denton and Tarrant Counties). CD-3 and CD-26 were overpopulated by 166,021 and 176,119 people, respectively. CD-12 (Tarrant, Wise and Parker Counties) was overpopulated by 97,537 people. CD-24 (Tarrant, Dallas, and Denton Counties) was overpopulated by 55,719 people. CD-6 (Tarrant County and counties to the southeast) had an excess of 57,991 people.

32. All of the CDs that have some or all of their population in Bexar County (CD-20, CD-21, CD-23, CD-28, and CD-35) were overpopulated under the Prior Map. In particular, CD-21 had 81,083 in excess of the 766,987 people needed for a district, and CD 35 (also in Travis County) had 65,409 more people than is required.

33. The regions around Austin, Dallas-Fort Worth, Houston, and San Antonio have increased their population substantially. The CDs in these areas require considerable restructuring in order to conform with population equality.

B. Majority-Minority CDs in the Enacted Map

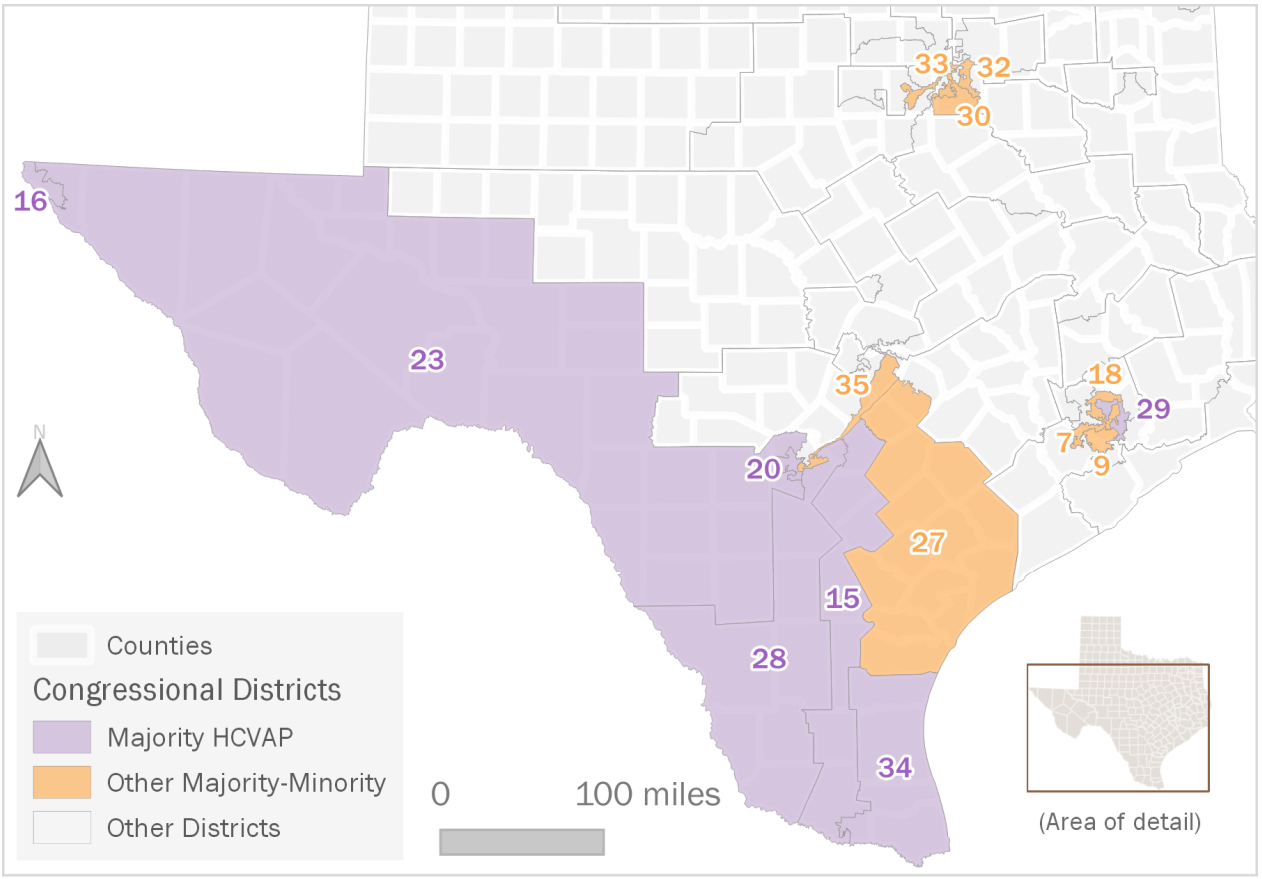
B.i Overall Assessment

34. The Enacted Map was passed into law as Senate Bill 6 (SB 6). In the indexing of proposed maps in the Texas Legislative Council's data system it is also called Plan C2193.

35. Detailed information about the Enacted Map is in Table 3 (Summary Characteristics of Majority-Minority CDs), Table 7 (Total and Citizen Voting Age Population), Table 10 (General Election Results), Table 13 (Racial Group Voting in General Elections), and Tables 17 and 18 (Compactness).

36. The Enacted Map creates 23 CDs in which whites are the majority of the CVAP. All of the majority white CDs are districts in which whites are able to elect their preferred candidates. The Enacted Map creates 15 CDs in which minorities are a majority of the CVAP. Only 13 of those majority-minority districts are districts in which minorities have the opportunity to elect their preferred candidates.

Figure 2: Majority-Minority Congressional Districts in the Enacted Map (SB 6)



B.ii Specific Districts and Areas

37. This section examines specific districts and areas where there are majority-minority districts in the Enacted Map. The first part of this section examines the seven majority Hispanic districts in the map. The remainder of the section examines the other eight majority non-white districts.

38. The Enacted Map creates seven majority Hispanic CDs. These are Enacted CD-15, CD-16, CD-20, CD-23, CD-28, CD-29, and CD-34. See Table 7.

39. Six of these districts – CD-15, CD-16, CD-20, CD-28, CD-29 and CD-34 – are districts in which Hispanics have the ability to elect their preferred candidates. CD-15, CD-16, CD-20, CD-28, and CD-34 are in South and West Texas; CD-29 is in Harris County. In these six districts, the Hispanic-preferred candidates won majorities of votes in almost all statewide elections examined. The lowest rate of success is in CD-15, where Hispanic preferred candidates won majorities in 28 of 35 (80 percent) elections examined. See Table 10.

40. Ecological regression analysis establishes that voting is racially polarized in CD-15, CD-16, CD-20, CD-28, CD-29, and CD-34. Hispanics in these CDs are cohesive, with around 75 to 85 percent of Hispanics voting for a given party or candidate. Whites also vote cohesively in these districts. In each of these CDs, majorities of whites vote for candidates opposing the Hispanic-preferred candidates. Indeed, the degree of white bloc voting is very high in CD-15, CD-16, CD-28 and CD-34. In CD-15, it is estimated that nearly 90 percent of the white vote goes to Republicans, while 76 percent of Hispanics vote for Democrats. In CD-28 and CD-34, approximately 80 percent of the white vote was for candidates of the opposite party as those preferred by Hispanics. In Enacted CD-16, 74 percent of whites voted

opposite to the preferences of a majority of Hispanics. See Table 13.

41. Enacted CD-23 is the seventh majority HCVAP district, but as it is configured in the Enacted Map, it is not a district in which Hispanics will have the opportunity to elect their preferred candidates. Voting is racially polarized in Enacted CD-23, and there are very high levels of white bloc voting. See Table 13. Election results in the precincts in Enacted CD-23 reveal that the white-preferred candidates won the majority of votes in 33 of 35 (94 percent) elections examined; the Hispanic-preferred candidates won a majority of votes in precincts in Enacted CD-23 in only 2 of 35 (6 percent) elections examined. See Table 10. Notably, SB 6 reduced the share of Hispanic voters in Enacted CD-23 by 5 percentage points as compared with Prior CD-23, even though the candidate preferred by Hispanic voters in Prior CD-23 was elected just once, in 2012, by a less than 5-point margin. Enacted CD-23 thus is not a district in which Hispanic voters have a reasonable opportunity to elect their preferred candidates.

42. There are 482,437 Hispanic people in Enacted CD-23. According to the 2016-2020 ACS, there are 264,260 Hispanic citizens of voting age in Enacted CD-23, and according to the 2015-2019 ACS, there are 263,709 Hispanic citizens of voting age in this CD. The vast majority of these people are in a district in which they do not have the opportunity to elect their preferred candidates.

43. The Enacted Map creates three other majority-minority districts in which Hispanics are the most populous group but not a majority of the CVAP: Enacted CD-27, Enacted CD-33, and Enacted CD-35. Enacted CD-27 is 49.4 percent HCVAP and 4.8 percent BCVAP. Enacted CD-33 is 42.9 percent HCVAP and 26.7 percent BCVAP. Enacted CD-35 is 47.6 percent HCVAP and 14.9 percent BCVAP. See Table 7. There, however, the similarities between these districts end.

44. Enacted CD-27, anchored in Nueces and San Patricio Counties in South Texas, does not afford Hispanics the opportunity to elect their preferred candidates. Hispanics comprise 49.4 percent of the CVAP in Enacted CD-27, and whites are 43.7 percent of the CVAP. Indeed, SB 6 increases by 2.5 percentage points the HCVAP in CD-27, from the Existing Map (Plan C2100) to the Enacted Map, yet still without making it a performing district. Among all the precincts included in Enacted CD-27, white-preferred candidates won the majority of votes in all elections examined and Hispanic-preferred candidates won in none. See Table 10.

45. Hispanics are cohesive in the version of CD-27 under the Enacted Map, and voting is racially polarized. More than four-fifths of Hispanics (86 percent) vote for Democratic candidates in Enacted CD-27. Whites exhibit extremely high levels of bloc voting in opposition to the Hispanic-preferred candidates. In Enacted CD-27, whites vote for candidates opposed to the Hispanic-preferred candidates 88 percent of the time. See Table 13. Given this high degree of white bloc voting, a different configuration and or demographic composition would be required for CD-27 to be a district in which Hispanics have the opportunity to elect their preferred candidates.

46. There are 410,805 Hispanic people in Enacted CD-27. According to the 2016-2020 ACS, there are 267,474 Hispanic Citizens of voting age in Enacted CD-27, and according to the 2015-2019 ACS, there are 262,789 Hispanic citizens of voting age in this CD. The vast majority of these people are in a district in which they do not have the opportunity to elect their preferred candidates.

47. Enacted CD-33, in Dallas and Tarrant County, is a district where voting is polarized and in which Hispanics and Blacks will be able to elect their preferred candidates. Hispanic-preferred candidates won the majority of the vote in 97 percent of general elections in the

precincts covered by CD-33 under the Enacted Map. The average vote share for Hispanic and Black preferred candidates is 75 percent. See Table 10.

48. In general elections, Blacks and Hispanics in Enacted CD-33 vote together at very high rates. See Table 13. In addition, as shown in Table 16, Blacks and Hispanics are cohesive in primary elections.

49. Enacted CD-35, which bridges Bexar and Travis Counties, is a district in which Hispanics and Blacks will be able to elect their preferred candidates, but voting is not racially polarized. In general elections, Blacks and Hispanics vote together at very high rates in the precincts included in Enacted CD-35. See Table 13. On average, whites in Enacted CD-35 also vote for the Hispanic-preferred candidates rather than the opposing candidates. Hispanic-preferred candidates won the majority of the vote in 97 percent of general elections in the precincts covered by CD-35 under the Enacted Map. Candidates preferred by Hispanics and Blacks won, on average, 72 percent of the vote. See Table 10.

50. The Enacted Map also contains three majority-minority CDs in which Blacks are a plurality of the adult citizen population. These are CD-9 and CD-18 in Harris County, and CD-30 in Dallas County. CD-9, CD-18, and CD-30 are historically Black opportunity districts. Enacted CD-9 has a Black CVAP of 47.1 percent and an HCVAP of 24.8 percent. Enacted CD-18 has a Black CVAP of 40.6 percent and an HCVAP of 29.1 percent. Enacted CD-30 has a Black CVAP of 49.0 percent and an HCVAP of 21.5 percent. See Table 7.

51. Enacted CD-9, Enacted CD-18, and Enacted CD-30 will be districts in which minorities have the opportunity to elect their preferred candidates. Across statewide general elections in 2016, 2018, and 2020, candidates preferred by Blacks won majorities of the votes in 97 percent of elections examined in CD-9, 97 percent of elections in CD-18, and 97 percent

of elections in CD-30. On average, candidates preferred by Blacks won 77 percent of the vote, 74 percent of the vote, and 77 percent of the vote in CD-9, CD-18, and CD-30, respectively. See Table 10.

52. Ecological inference (and ecological regression) analysis establishes that in every case in these elections a majority of Blacks and a majority of Hispanics preferred the Democratic candidate. According to EI analyses, whites split their vote evenly between Democratic and Republican candidates in Enacted CD-9, in Enacted CD-18, and in Enacted CD-30. The absence of white bloc voting in Enacted CD-18 and Enacted CD-30 suggests that a functioning minority district may be maintained with a lower minority CVAP than may be needed elsewhere in the state. See Table 13.

53. Finally, Enacted CD-7 and Enacted CD-32 are majority-minority districts in which Blacks and Hispanics account for roughly equal shares of the population and have the opportunity to elect their preferred candidates. See Tables 7 and 10.

C. Demonstration Map 1

54. I developed two maps to demonstrate that additional minority-opportunity Congressional districts could be developed in the State of Texas. I started with the Enacted Map and focused attention on three areas of the State: Dallas-Fort Worth, Houston, and the South and Southwest Texas region, leaving all districts outside of these areas unchanged from the Enacted Map. The South and Southwest Texas region is an envelope of counties that extends from El Paso to Travis County, from Travis to Nueces County, and from Nueces to Cameron County; this area also includes Bexar County.

55. Detailed information about Demonstration Map 1 is in Table 4 (Summary Char-

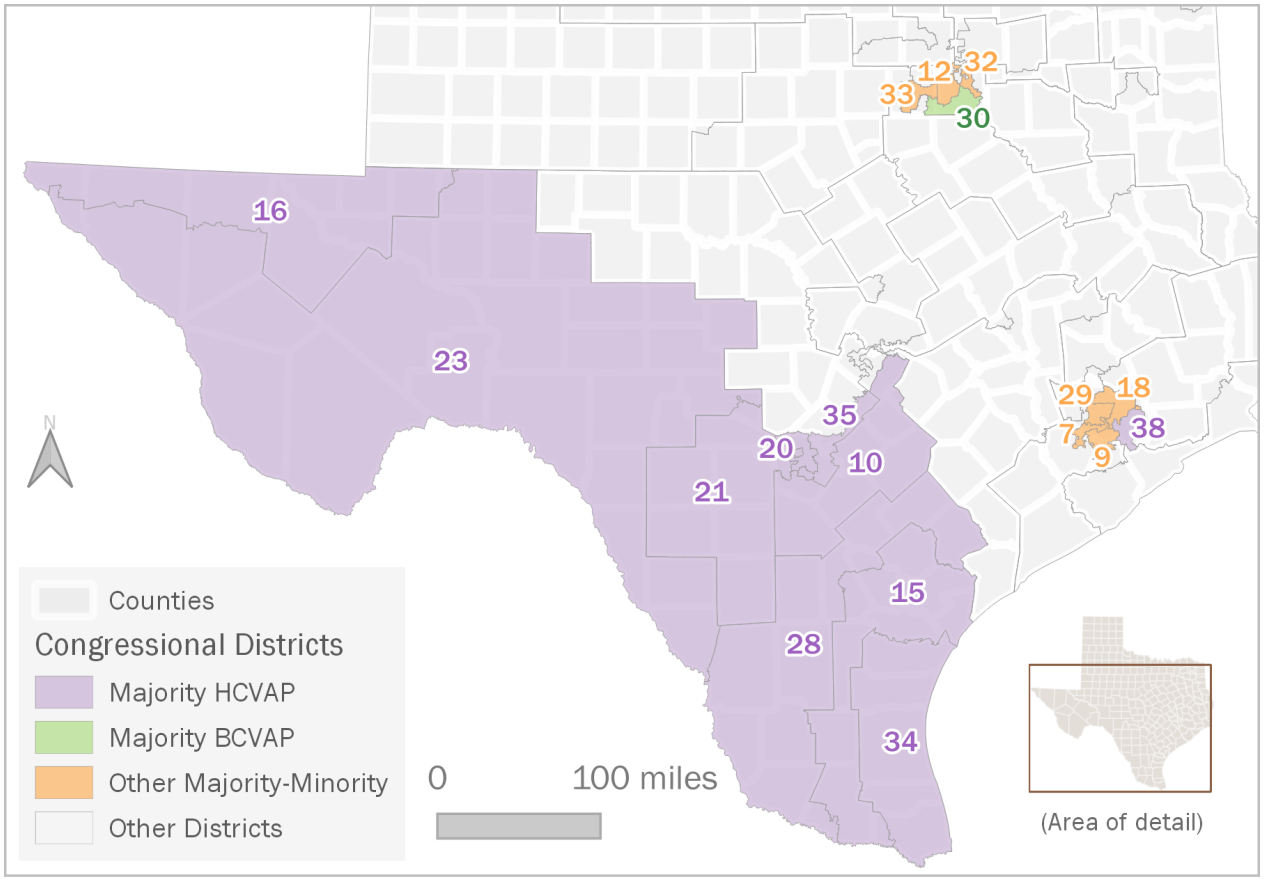
acteristics of majority-minority CDs), Table 8 (Total and Citizen Voting Age Population), Table 11 (General Election Results), Table 14 (Racial Group Voting in General Elections), and Table 17 (Compactness). A complete image of Demonstration Map 1 is attached as Exhibit 1, and block equivalency files will be provided simultaneously with this report.

C.i Overall Assessment

56. Demonstration Map 1 has 20 CDs in which whites are the majority of all people and 18 CDs in which minorities comprise the majority of the eligible electorate (CVAP). The majority-minority districts in Demonstration Map 1 are CD-7, CD-9, CD-10, CD-12, CD-15, CD-16, CD-18, CD-20, CD-21, CD-23, CD-28, CD-29, CD-30, CD-32, CD-33, CD-34, CD-35, and CD-38. See Table 8. Two of these districts – CD-7 and CD-32 – are identical to the configuration in the Enacted Map, SB 6.

57. Overall, Demonstration Map 1 shows that it is possible to create 5 more majority-minority CDs in which minorities would be able to elect their preferred candidates than under the Enacted Map. See Table 4 for a summary of Demonstration Map 1; see Table 6 for a summary and comparison to the Enacted Map.

Figure 3: Majority-Minority Congressional Districts in Demonstration Map 1

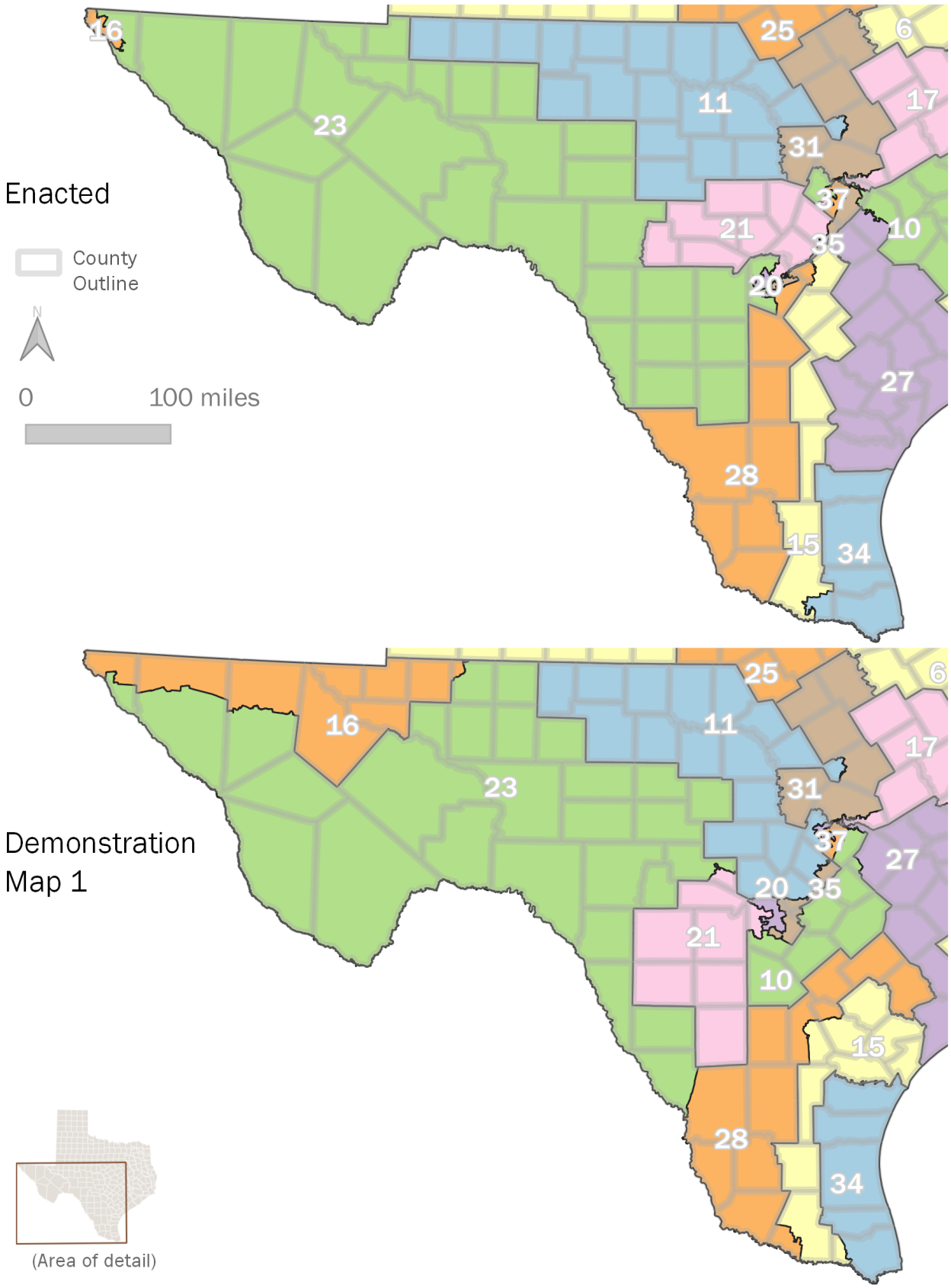


C.ii Areas of Qualitative Improvement in Minority Representation in Demonstration Map 1

58. A comparison of Demonstration Map 1 with the Enacted Map highlights three areas where minority representation is significantly improved.

59. First, Demonstration Map 1 makes substantial improvements in South and Southwest Texas. CD-23 in Demonstration Map 1 becomes a majority HCVAP district in which Hispanics would have the opportunity to elect their preferred candidates. In addition, under Demonstration Map 1, Nueces County and San Patricio Counties, which are majority Hispanic and majority HCVAP counties, are placed into districts (Demonstration CD-15 and Demonstration CD-34) in which Hispanics have the opportunity to elect their preferred candidates. As a further result of those two changes, two new reasonably compact, majority HCVAP districts emerge: Demonstration CD-21 and Demonstration CD-10. Demonstration CD-21 is located in western Bexar County and in counties to the west of Bexar that were in Enacted CD-23. Demonstration CD-10 takes in parts of Bexar and Travis Counties as well as Comal, Hayes, Guadalupe and Gonzales Counties that were scattered across Enacted CD-27, Enacted CD-15, Enacted CD-28, and Enacted CD-35. Demonstration CD-10 and Demonstration CD-21 are reasonably compact majority HCVAP districts in which Hispanics would have the opportunity to elect their preferred candidates. Their configuration allows for the improvement of the compactness of CD-35. See Tables 8, 11, and 17.

Figure 4: Demonstration Map 1 in South and West Texas



60. Second, Enacted CD-29 interferes with the creation of an additional, compact majority-minority district in the Houston area. Demonstration Map 1 replaces Enacted CD-29 with Demonstration CD-38 and Demonstration CD-29. Under the Demonstration Map, CD-38 is a majority-HCVAP district, like Enacted CD-29, but it is much more compact. Enacted CD-29 connects a triangular shaped part of north Houston to an area in southeastern Harris County in order to create a majority HCVAP district. Demonstration CD-38, by contrast, is a performing majority HCVAP district in the southeastern quadrant of Harris County. This district has the best Reock score of all CDs, meaning that it has the most compact area dispersion, and the tenth best Polsby-Popper, meaning that it has among the best perimeter shapes in the entire map. Further, CD-29 in Demonstration Map 1 connects the Hispanic area in north Houston with neighboring areas to the west and creates a highly compact majority-Black plus Hispanic district in which Blacks and Hispanics together would have the ability to elect their preferred candidates. CD-29 in Demonstration Map 1 has the eighth best Reock and ninth best Polsby-Popper. Both CD-38 and CD-29 in Demonstration Map 1 are more compact than Enacted CD-29 in terms of area dispersion and perimeter.

61. Third, Enacted CD-33 interferes with the creation of an additional, compact majority-minority district in the Dallas-Fort Worth area. Enacted CD-33 is a majority-minority district that spans Dallas and Tarrant Counties. It has an extremely low Polsby-Popper measure of .03, meaning that the area of Enacted CD-33 is only 3 percent of the area of a circle that has a perimeter of the same length. That is approximately the size of Connecticut relative to the size of Texas. Demonstration Map 1 creates a highly compact CD-12 on the Dallas side of this district and a highly compact CD-33 on the Tarrant side of this district. Like Enacted CD-33, both CD-12 and CD-33 in Demonstration Map 1 are majority Black plus Hispanic. These districts demonstrate that the non-compact configuration of Enacted CD-33 prevents the creation of an additional performing majority-minority CD (e.g., CD-12 in the Demonstration Map) in roughly the same location.

62. Overall, Demonstration Map 1 results in five additional, reasonably compact majority-minority CDs in which minorities would have the opportunity to elect their preferred candidates. That is accomplished without significantly worsening the compactness of majority-minority CDs; in fact, Demonstration Map 1 improves the overall compactness of majority-minority CDs. The Demonstration Map makes four existing majority-minority CDs (CD-15, CD-29, CD-33, and CD-35) more compact in both their area dispersion and perimeter, while one (CD-16) becomes less compact. Eight majority-minority Demonstration CDs are either unchanged in their compactness from the Enacted Map or are made better by the Demonstration Map on one measure but not on the other. See Table 17.

C.iii Analysis of Specific Districts and Areas

63. This section examines specific districts and areas where there are majority-minority districts in Demonstration Map 1.

64. In Demonstration Map 1, there are 11 majority-minority districts in which a single minority group is the majority of the CVAP. Of these 11 districts, 10 are majority HCVAP CDs and 1 is majority Black CVAP. These are CD-10, CD-15, CD-16, CD-20, CD-21, CD-23, CD-28, CD-30, CD-34, CD-35, and CD-38. See Table 4.

65. In each of the majority HCVAP or majority Black CVAP CDs in Demonstration Map 1, the relevant minority group is cohesive, and voting is racially polarized in general elections. Hispanics' cohesion levels are 85 percent in CD-10; 76 percent in CD-15; 83 percent in CD-16; 86 percent in CD-20; 84 percent in CD-21; 80 percent in CD-23; 77 percent in CD-28; 78 percent in CD-34, 85 percent in CD-35, and 85 percent in CD-38. In CD-30, nearly all Blacks voted for Democratic candidates. See Table 14.

66. Whites exhibit high rates of bloc voting for candidates opposed to minority-preferred candidates in each of these CDs: 67 percent in CD-10, 88 percent in CD-15; 89 percent in CD-16; 67 percent in CD-20; 78 percent in CD-21; 91 percent in CD-23; 91 percent in CD-28; 62 percent in CD-30; 81 percent in CD-34; 71 percent in CD-35; and 85 percent in CD-38. See Table 14. The high rates of polarization and of white bloc voting in opposition to minority preferred candidates in these areas create electoral circumstances where majority-minority districts, and in many cases a significant majority of minority voters, are needed for minorities to have the opportunity to elect their preferred candidates.

67. In each of the majority HCVAP CDs and Black CVAP CDs in Demonstration Map 1, minorities have the opportunity to elect their preferred candidates. See Table 11.

68. All of the majority HCVAP and Black CVAP Demonstration CDs that differ from the Enacted Map are reasonably compact compared to districts in the Prior and Enacted Maps. CD-15, CD-21, CD-35, and CD-38 are more compact in both area and perimeter than the versions of those CDs in the Prior Map. Demonstration 1's CD-35, which takes portions of Enacted CD-35, is much more compact than Prior or Enacted CD-35. It is comparable in its area and perimeter dispersion to Prior CD-15. It is more compact in its perimeter than Prior CD-18, Prior CD-29, Prior CD-33, or Prior CD-35. Demonstration CD-21 and CD-38 are highly compact majority HCVAP districts, and they are among the most compact CDs in the entire map. They are more compact in area dispersion than any district in the Enacted map; Demonstration CD-21 is more compact in perimeter dispersion than any district in the Enacted map besides Enacted CD-19 and Enacted CD-27; and Demonstration CD-38 is more compact in perimeter dispersion than all but nine districts in the Enacted map. See Table 17.

69. The exception is CD-16 under the Demonstration Map. Demonstration CD-16

is the only district in Demonstration Map 1 that became noticeably less compact. That said, CD-16 in Demonstration Map 1 is more compact in both area (Reock) and perimeter (Polsby-Popper) than Enacted CD-15. Table 17. It is more compact in its perimeter shape (Polsby-Popper) than 25 CDs in both the Prior and Enacted Maps. See Table 17. The less compact configuration of CD-16 under the Demonstration Map facilitates the reconfiguration of CD-23 into a district that will perform for Hispanic voters.

C.iii.1. South and West Texas

70. Demonstration Map 1 makes significant changes to the Enacted Map in South and West Texas, the portion of the state stretching from El Paso in the west to Brownsville in the Southeast, and north to Nueces and Bexar Counties.

71. The Enacted Map changed substantially the orientation of CD-16 and CD-23 in El Paso. Under the Prior Map, CD-16 took the northern part of the county, and CD-23 cut into the southern part of the county.

72. The Enacted Map reduced the HCVAP of CD-23. Hispanics are the majority of the HCVAP in Prior CD-23 and in Enacted CD-23. The Enacted Map, however, reduced the HCVAP in the district by 5 percentage points, from 63.2 percent in Prior CD-23 to 58.1 percent in Enacted CD-23. See Table 7.

73. The Enacted Map also reduced the electoral performance of CD-23 for Hispanics. Hispanics vote cohesively in CD-23 under the Enacted Map, voting, on average, 74 percent for Democrats. White voters in CD-23 in the Enacted Map are cohesive and opposed to the candidates preferred by Hispanics: Whites in this district vote 80 percent for Republicans. See Table 13. The Enacted Map shaved 3.6 percentage points off the average vote share won by candidates preferred by Hispanic voters in CD-23, reducing it from 48.9 percent in Prior

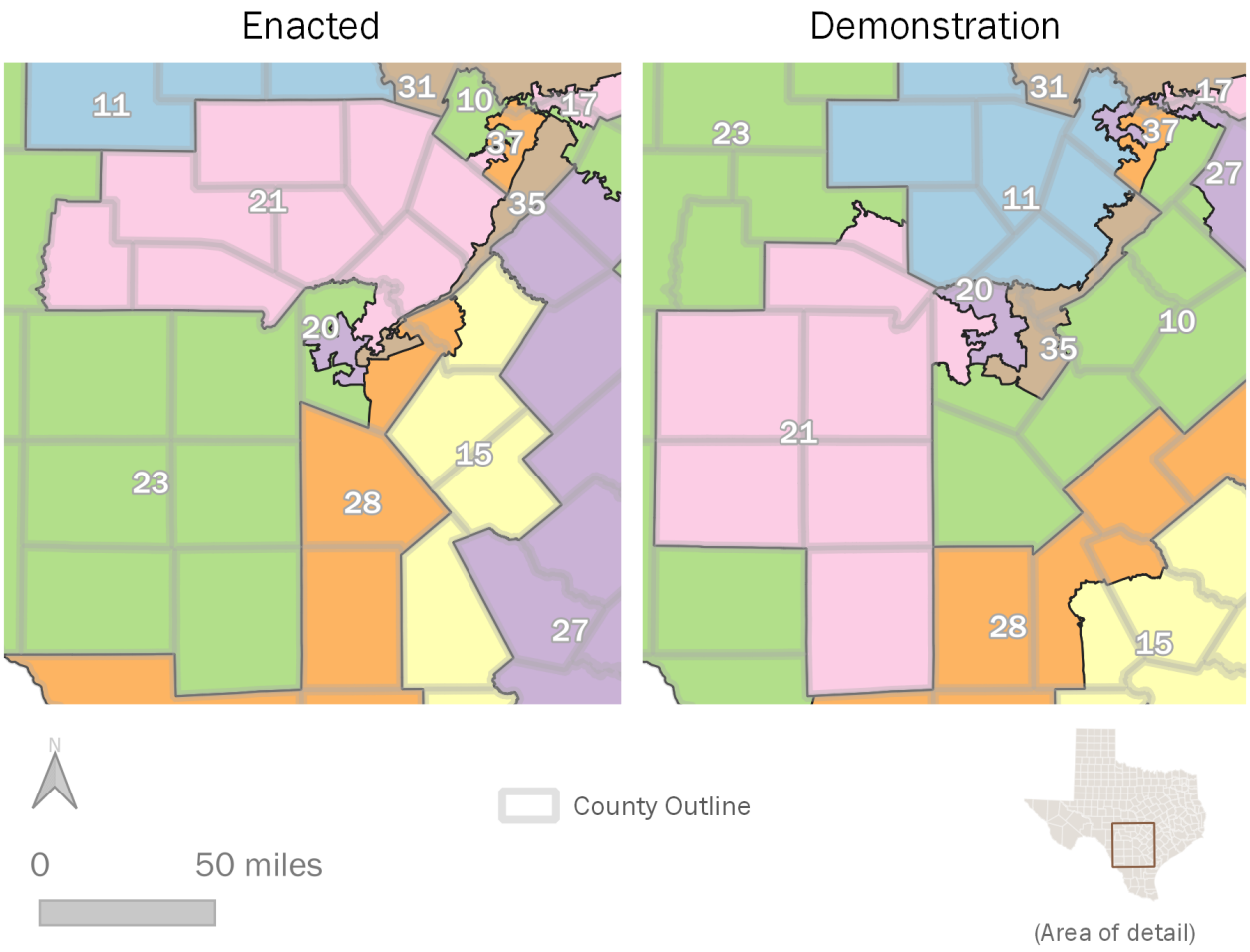
CD-23 to just 45.3 percent in Enacted CD-23. Candidates preferred by Hispanics won the majority of the vote in only 2 of 35 (about 6 percent) of elections analyzed, while candidates preferred by White voters won the majority of the vote in 94 percent of elections analyzed. See Table 10. CD-23 in the Enacted Map is not a district in which Hispanics would have the opportunity to elect their preferred candidates.

74. Demonstration Map 1 reconfigures CD-23 by shifting the district further west. As in the Prior Map, Demonstration CD-23 takes the southern portion of El Paso County and Demonstration CD-16 takes the northern portion. To the east, Demonstration Map 1 withdraws CD-23 from Bexar County and counties immediately to the west of Bexar. Demonstration CD-23 includes portions of Midland and Webb Counties. CD-16 takes the northern portions of El Paso County and follows the Texas-New Mexico border to Kermit and Midland.

75. Demonstration Map 1 shows that CD-23 can be drawn as a majority HCVAP district that will actually give Hispanics the opportunity to elect their preferred candidates. In the version of CD-23 in Demonstration Map 1, Hispanics are 72.0 percent of the CVAP. See Table 8. Hispanic-preferred candidates won, on average, 53.1 percent of the vote, and Hispanic-preferred candidates won majorities of votes in 97 percent of elections covered. See Table 11.

76. The reconfiguring of CD-23 and CD-16 leads to the emergence of a new majority Hispanic CVAP district. Demonstration CD-21 – a new majority HCVAP district in South and West Texas – is created in the western portions of Bexar County and counties that were part of Enacted CD-21, Enacted CD-23, and Enacted CD-28. Demonstration CD-21 takes the western third of Bexar County, as well as the entirety of Bandera, Frio, La Salle, Medina, Uvalde, and Zavala Counties, and a portion of Kerr County.

Figure 5: Demonstration Map 1 in Bexar and surrounding Counties



77. Hispanics would have the opportunity to elect their preferred candidates in Demonstration CD-21. Hispanics won, on average, 51 percent of the vote in Demonstration CD-21, and they won the majority of the vote in 25 of 35 elections examined. See Table 11. Voting is racially polarized in Demonstration CD-21. See Table 14.

78. Demonstration CD-21 is highly compact. It is more compact in both area and perimeter than Enacated CD-21. It has an area dispersion (Reock) higher than any CD in the Enacted Map, and it has a higher (better) perimeter compactness than all but two CDs in the Enacted Map. See Table 17.

79. Demonstration Map 1 also illustrates that Enacted CD-27 interferes with the emergence of a reasonably compact majority Hispanic CVAP district in this region. That district is CD-10 in Demonstration Map 1.

80. Enacted CD-27 submerges the substantial Hispanic populations of Nueces and San Patricio Counties in a district in which white-preferred candidates will usually defeat Hispanic-preferred candidates. Enacted CD-27 is a majority-minority CVAP district that is 49.4 percent HCVAP, and Hispanics vote cohesively in this district. See Tables 7 and 13. However, Enacted CD-27 is not a performing district for minority voters generally or Hispanics in particular. Candidates preferred by Hispanic voters in Enacted CD-27 win, on average, only 38 percent of the vote, and won the majority in none of the 35 elections analyzed. See Table 10. There is a very high level of White bloc voting, against the Hispanic-preferred candidates in Enacted CD-27. See Table 13.

81. Of particular concern is the inclusion of Nueces and San Patricio Counties in Enacted CD-27. Nueces County and San Patricio County are majority Hispanic CVAP counties. According to the 2016-2020 ACS, Hispanics are 60.0 percent of the HCVAP in Nueces County

and 53.7 percent of the HCVAP in San Patricio. There are a total of 217,052 Hispanics in Nueces and 38,220 Hispanics in San Patricio. Combined these counties have 255,274 Hispanic people. All of these people are put into CD-27 under the Enacted Map, a district in which Hispanics will not have the opportunity to elect their preferred candidates. Demonstration Map 1 corrects that as follows.

82. Demonstration Map 1 places Nueces County in Demonstration CD-34, and it places San Patricio County in Demonstration CD-15. Both Demonstration CD-15 and Demonstration CD-34 remain majority-HCVAP districts in which Hispanics have the opportunity to elect their preferred candidates, as they are under the Enacted Map. Moving San Patricio into Demonstration CD-15 and Nueces into Demonstration CD-34 into Nueces County pulls these districts south, and allows for a reconfiguration of CD-28 that is also further south and does not extend into Guadalupe County. Demonstration CD-28 curves eastward, parallel to the shape of Demonstration CD-15, Demonstration CD-34, and the Gulf Coast.

83. Moving Nueces and San Patricio Counties into performing, majority HCVAP districts (Demonstration CD-15 and Demonstration CD-34) pulls CD-28 and CD-15 to the south. This opens population in Bexar, Comal, Hayes, and Travis Counties, leading to the emergence of a new majority HCVAP district in which Hispanics would have the opportunity to elect their preferred candidates. That district is Demonstration CD-10.

84. Demonstration Map 1 repositions Enacted CD-10 to run from Travis to Bexar, rather than from Travis to Harris. This is a much shorter distance to travel from one end of the district to the other. Demonstration CD-10 attaches the Travis County portion of Prior CD-35 to the counties south and southwest. Demonstration CD-10 consists of the entirety of Atascosa County, portions of Bexar County, the entirety of Caldwell County, the entirety of Gonzales County, the entirety of Guadalupe County, portions of Travis County, and the

entirety of Wilson County. Gonzales and Caldwell Counties are in Enacted CD-27, Atascosa is in Enacted CD-28, Wilson County is in Enacted CD-15, and Guadalupe is split between Enacted CD-15 and Enacted CD-28. Guadalupe County is united under the Demonstration map; it was divided in the Enacted map.

85. Demonstration CD-10 is reasonably compact. It is more compact than Enacted CD-10 in its perimeter (Polsby-Popper score) and slightly less compact in its area (Reock score). See Table 17.

86. Demonstration CD-10 is a district where Hispanics would have the opportunity to elect their preferred candidates. Demonstration CD-10 is a majority HCVAP. See Table 8. Demonstration CD-10 covers areas where voting is racially polarized, and where Hispanics vote cohesively. See Table 14. Candidates preferred by Hispanics in Demonstration CD-10 won, on average 57 percent of the vote, and won majorities in 34 of 35 elections examined. See Table 11.

87. The configuration of Demonstration CD-10 has beneficial spillover effects on surrounding districts. In particular, the Demonstration Maps substantially improve the compactness of two of the least compact districts in the Enacted Congressional Map, Enacted CD-15 and Enacted CD-35. Demonstration CD-15 is substantially more compact than Enacted CD-15. Demonstration Map 1 results in a nearly two-fold improvement in the area dispersion of CD-15, and it also improves the perimeter compactness of CD-15. See Table 17. As discussed above, Demonstration CD-15 would remain a majority HCVAP district in which Hispanics have the opportunity to elect their preferred candidates.

88. The creation of Demonstration CD-10 allows for the improvement of CD-35. Demonstration CD-10 takes the Travis County portion of Enacted (and Prior) CD-35. Demonstra-

tion CD-35 moves further into Bexar County and takes portions of Comal and Hays Counties. This reconfiguration of the map in this area improves the compactness of CD-35. Under the Enacted Map CD-35 has an area dispersion (Reock) score of .08 and a perimeter irregularity (Polsby-Popper) score of .079. Demonstration CD-35 doubles the area compactness of CD-35, increasing the Reock to .17; the perimeter compactness score improves to .094. See Table 17.

89. Demonstration CD-35 would be a majority HCVAP district in which Hispanics have the ability to elect their preferred candidates. See Tables 8, 11, and 14.

90. Thus, it is possible to create two additional, reasonably compact majority HCVAP districts in South and West Texas. In doing so, it is also possible to configure CD-23 so that it performs as a district where minorities would have the opportunity to elect their preferred candidates. It is possible to incorporate the sizable Hispanic populations in Nueces and San Patricio Counties into CDs where they will have the opportunity to elect their preferred candidates. And, it is possible to improve the compactness of nearly every district affected, including two of the least compact districts in the State of Texas, Enacted CD-15 and Enacted CD-35. The net effect of the Demonstration Map in South and West Texas would be to create three additional performing majority HCVAP districts: CD-10, CD-21, and CD-23.

C.iii.2. Dallas-Fort Worth Area and Harris County

91. In Demonstration Map 1, CD-12 (Dallas) and CD-29 (Harris) would be new majority-minority districts, while Demonstration CD-38 is a more-compact majority HCVAP district that replaces Enacted CD-29. They are highly compact districts in which minorities would have the opportunity to elect their preferred candidates. They show that the configuration of districts in Dallas-Fort Worth and in Harris under the Enacted Map interferes with the emergence of additional reasonably compact, majority-minority districts in these areas.

Figure 6: Demonstration Map 1 in Dallas-Fort Worth

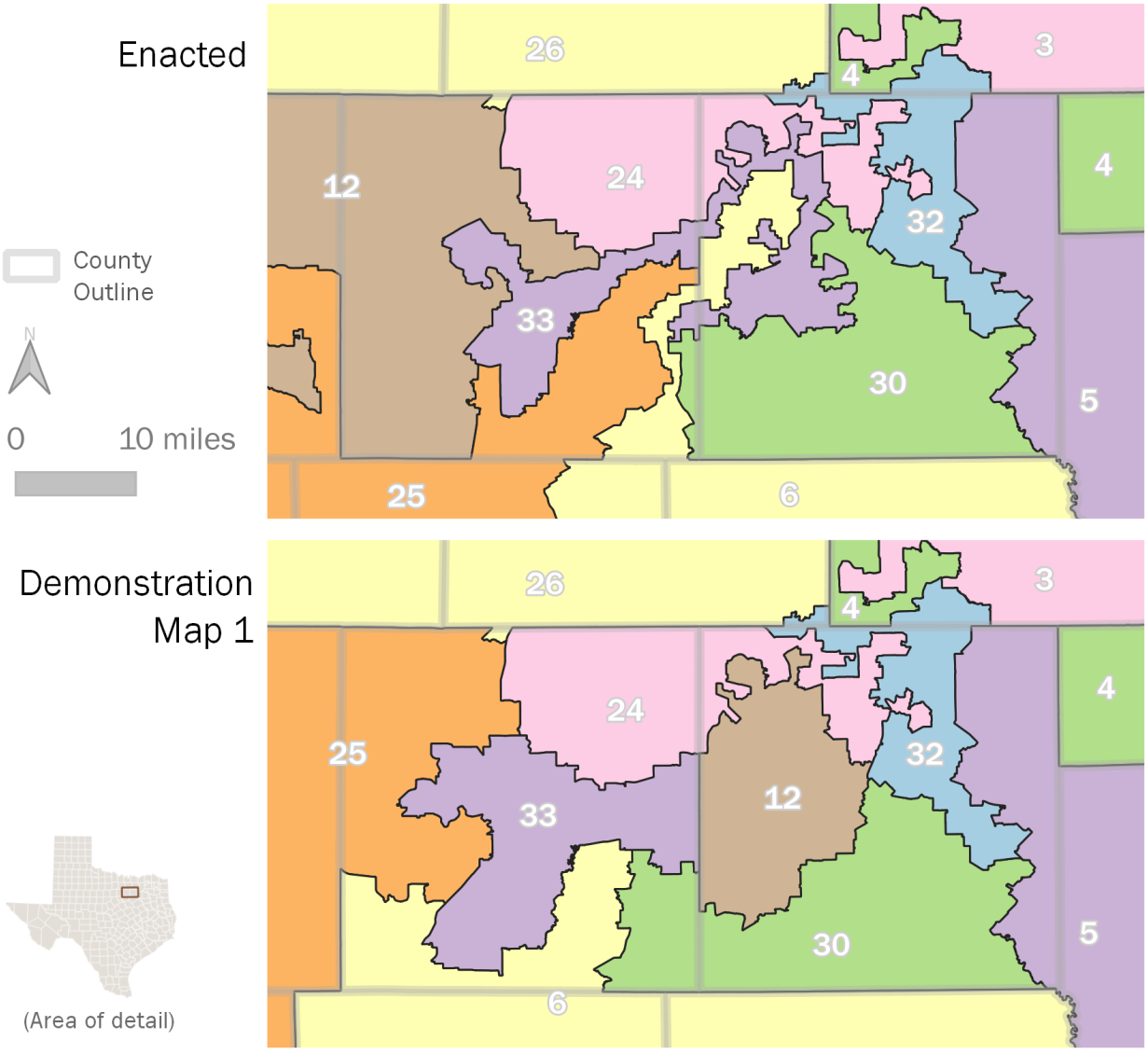
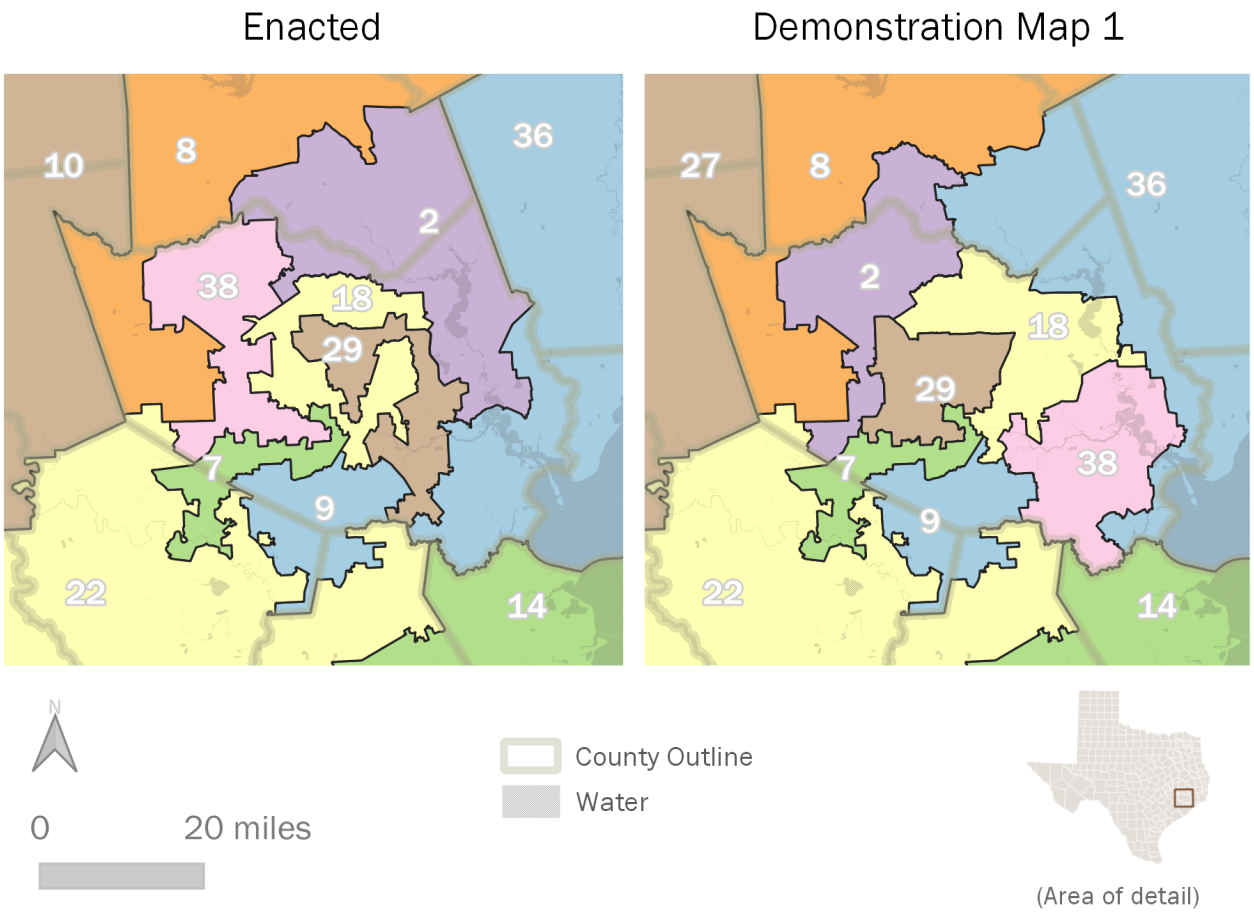


Figure 7: Demonstration Map 1 in Harris County



92. All of the new and reconfigured majority Black and Hispanic districts in Demonstration Map 1 in Dallas-Fort Worth and Harris County are reasonably compact. For example, CD-9 in Demonstration Map 1 closely resembles the version in the Enacted Map, which is highly compact in its area dispersion and has perimeter dispersion that is about average for CDs in the map. CD-18 in Demonstration Map 1 is somewhat less compact in area dispersion than the version of this district in the Enacted Map, but more compact in its perimeter dispersion. The versions of CD-12, CD-29, CD-33, and CD-38 in Demonstration Map 1 are more compact than the versions of these districts in the Enacted Map. See Table 17.

93. In the new majority-minority districts in which Blacks plus Hispanics constitute a majority of the CVAP in Demonstration Map 1, I examined the voting behavior in all contested statewide and federal primary and primary runoff elections in 2016, 2018, and 2020 using ecological inference, adjusting for each group's estimated primary election participation rates. Instances where a majority of a group votes the same way as a majority of another group are considered instances of cohesion; instances where majorities are opposed are considered not cohesive; and instances where it is unclear which way a group's votes were split are inconclusive. Table 16 presents the summary of the results.

94. Blacks and Hispanics vote cohesively in Democratic primaries and runoff elections in the Dallas-Fort Worth area. CD-12 and CD-33 under Demonstration Map 1 are districts where Blacks plus Hispanics are a majority of the population and where minorities have the opportunity to elect their preferred candidates. I analyzed twenty-one contested primary or runoff elections in precincts that comprise these Demonstration CDs. Setting aside the handful of cases where the data are not informative, majorities of Blacks and majorities of Hispanics voted for the same primary candidates 94 percent of the time in Demonstration Map CD-12 and 82 percent of the time in Demonstration CD-33 under Demonstration Map 1. Hispanics and Blacks are cohesive in their primary voting in Demonstration CD-12 and

Demonstration CD-33. See Table 16.

95. Very similar patterns of cohesive voting are reflected in the Harris County majority-minority districts. A majority of Blacks and a majority of Hispanics vote for the same candidates in primaries in Demonstration Map 1's version of CD-29 87 percent of the time.

96. Hence, Demonstration Map 1 offers five more majority-minority opportunity districts than the Enacted Map – two additional majority-HCVAP districts (Demonstration CD-10 and Demonstration CD-21), one reconfigured majority-HCVAP district that allows it to perform for Hispanic-preferred candidates (Demonstration CD-23), and two additional majority-Black plus Hispanic CVAP districts (Demonstration CD-12 and Demonstration CD-29)[7] in which the minority groups vote cohesively against white bloc voting to allow them an opportunity to elect their preferred candidates.

D. Demonstration Map 2

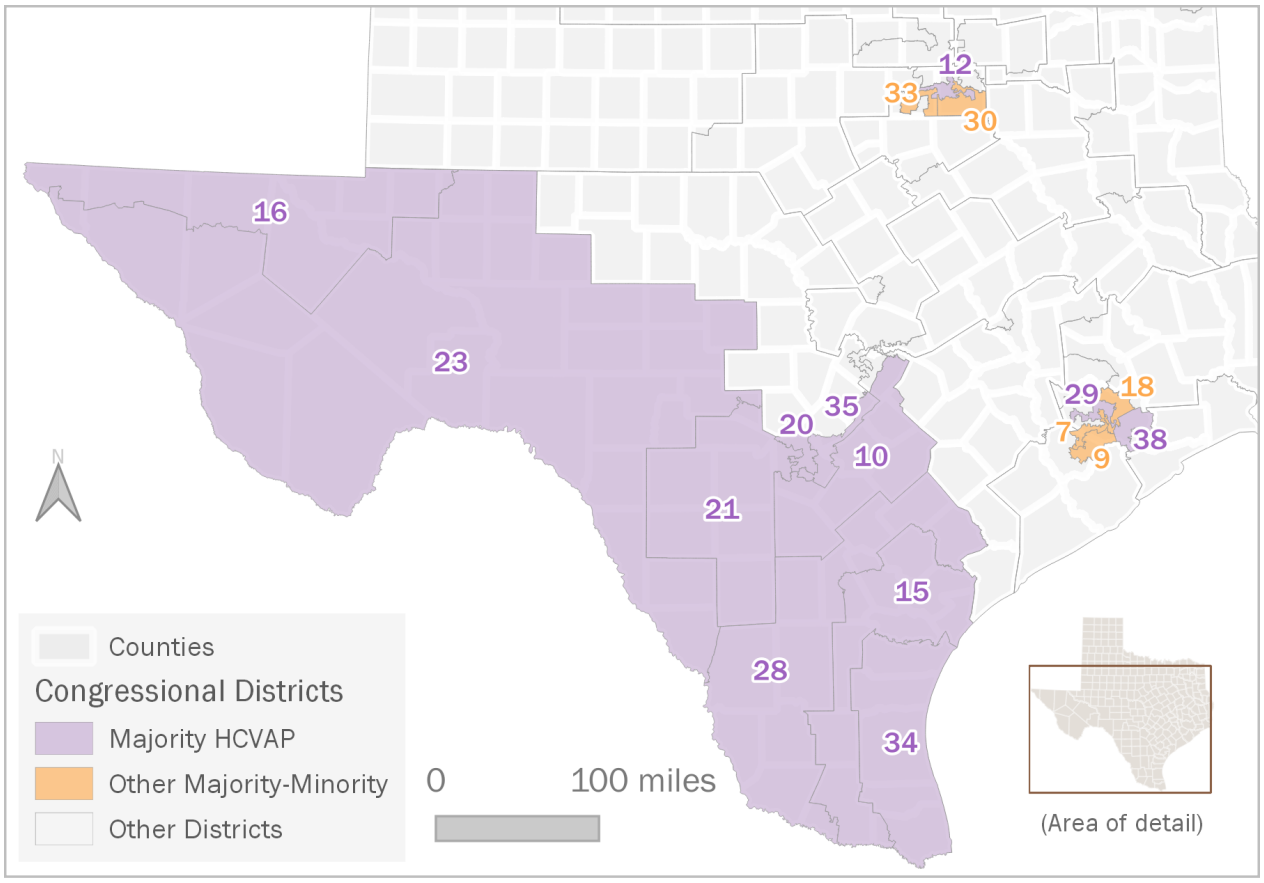
97. Demonstration Map 2 is identical to Demonstration Map 1 in South and West Texas but offers an alternative configuration of the Dallas-Fort Worth and Houston areas. The Dallas-Fort Worth and Houston area districts are adapted from Plan C2163.

98. Detailed information about Demonstration Map 2 is in Table 5 (summary Characteristics of majority-minority CDs), Table 9 (Total and Citizen Voting Age Population), Table 12 (General Election Results), Table 15 (Racial Group Voting in General Elections), and Table 18 (Compactness). A complete image of Demonstration Map 2 is attached as Exhibit 2, and block equivalency files will be provided simultaneously with this report.

[7]Enacted CD-29 was a majority HCVAP district, and it is replaced by CD-38 under Demonstration Map 1, a more-compact majority HCVAP district that unites a portion of Enacted CD-29 with additional Hispanic communities in southeast Houston.

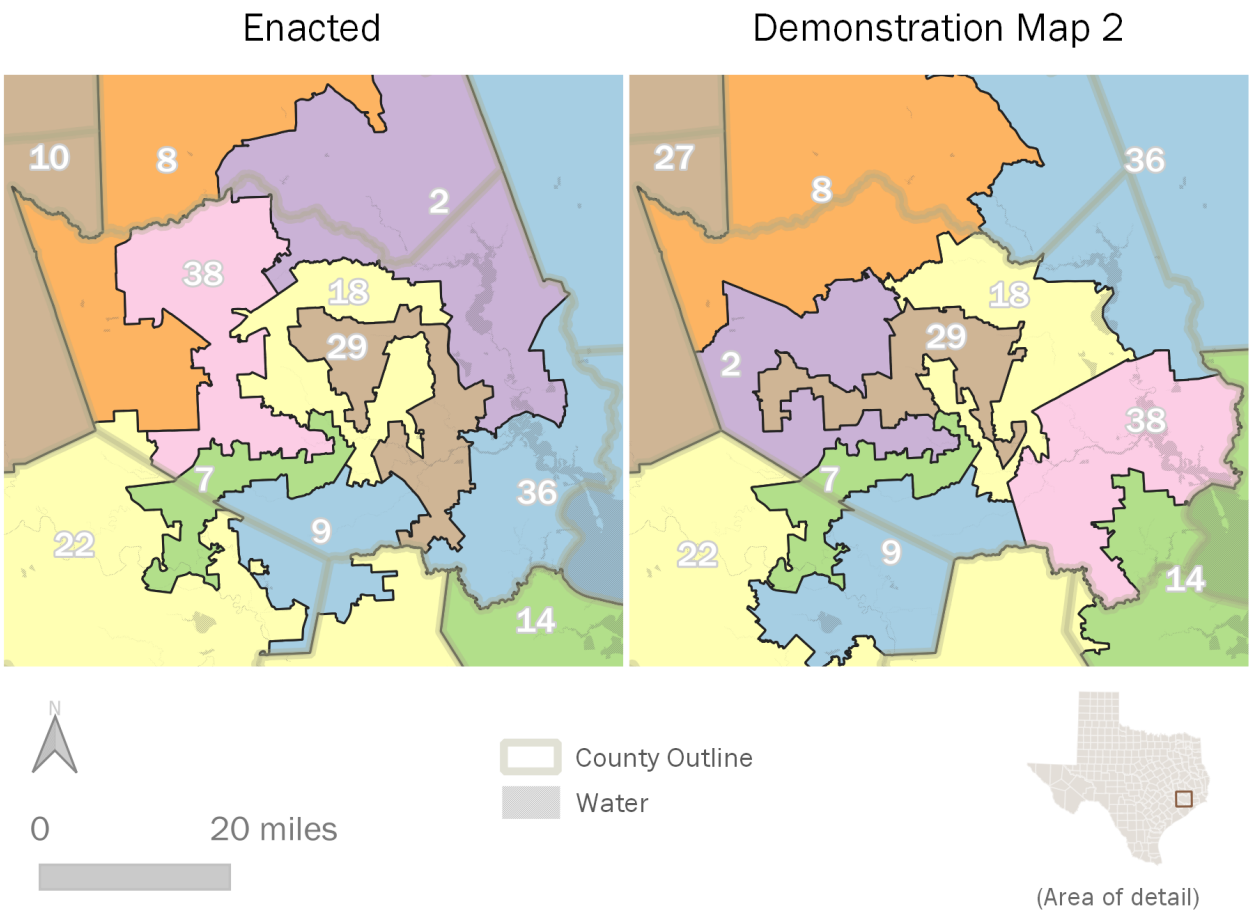
99. Demonstration Map 2 shows that additional majority Hispanic CVAP districts are possible in each of the Dallas-Fort Worth and Houston areas. Under Demonstration Map 2, Enacted CD-29 is split into two majority HCVAP districts – Demonstration CD-29 and Demonstration CD-38. Further, Demonstration Map 2 creates one additional majority HCVAP district in Dallas-Fort Worth, Demonstration CD-12. Information about the majority-HCVAP districts in this map are summarized in Table 5.

Figure 8: Majority-Minority Districts in Demonstration Map 2



100. In Demonstration Map 2, CD-29 and CD-38 in Harris County would be districts in which Hispanics are a majority of the CVAP – one more such district than in the Enacted Map. See Table 9. Both of these districts in Demonstration Map 2 would be districts in which Hispanics have the opportunity to elect their preferred candidates. The average vote for Hispanic preferred candidates is 56 percent in Demonstration CD-38 and 67 percent in Demonstration CD-29. See Table 12.

Figure 9: Enacted and Demonstration Map 2 in the Houston Area

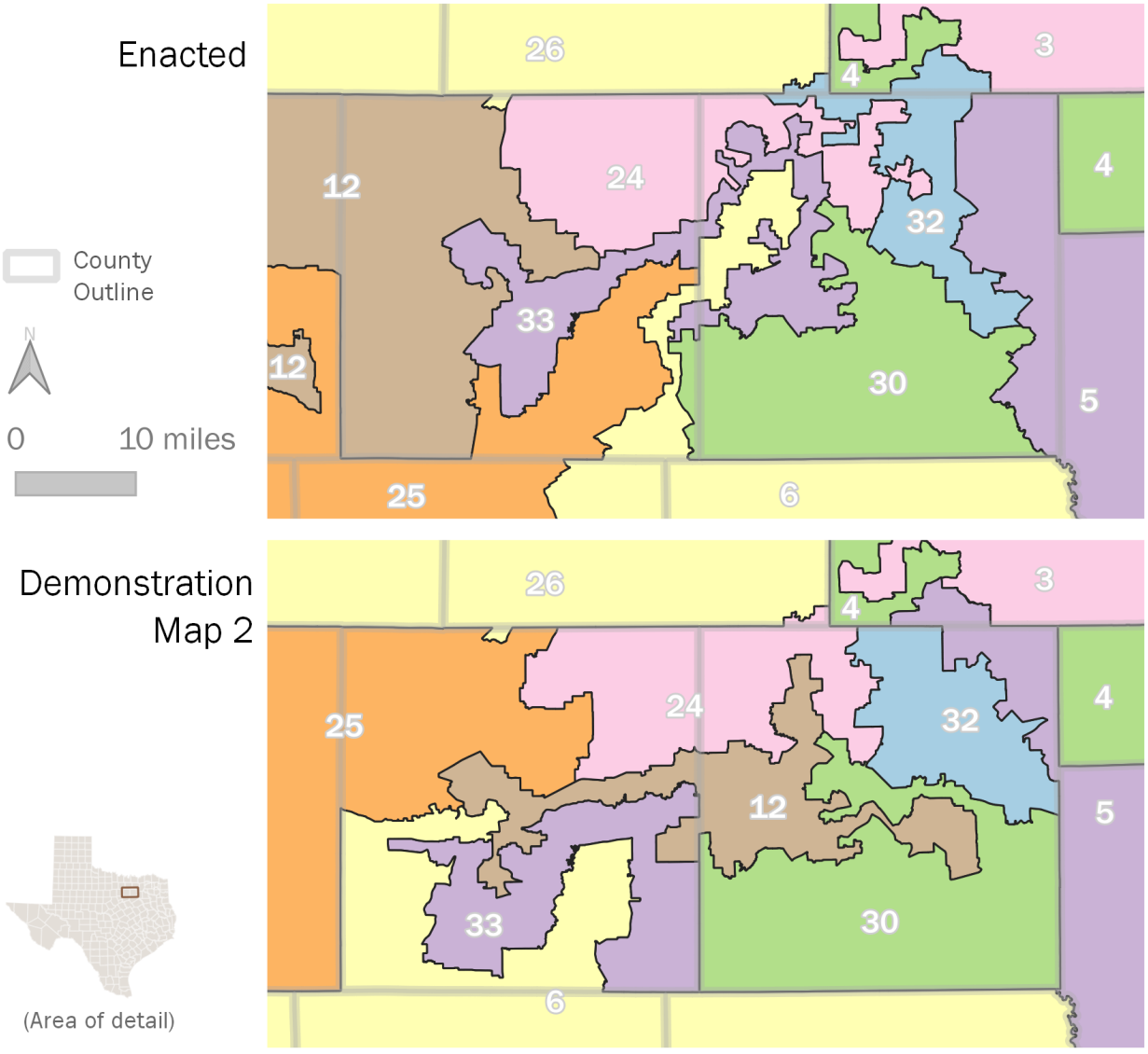


101. Hispanics are cohesive in these districts, voting for Democratic candidates, on average, 86 percent of the time in Demonstration CD-29 and 83 percent of the time in Demonstration CD-38 under Demonstration Map 2. Whites are also cohesive and exhibit a high rate of bloc voting in opposition to the Hispanic-preferred candidates in these areas. See Table 15.

102. The compactness of CD-29 in Demonstration Map 2 is somewhat lower than CD-29 under Demonstration Map 1. However, it has nearly the same area dispersion compactness and perimeter compactness as Enacted CD-29, and it is much more compact than majority-minority districts elsewhere in the Prior or the Enacted Maps, such as Prior and Enacted CD-35 and CD-15. See Table 18. Thus, it is possible to configure CD-29 as either a majority HCVAP, as in Demonstration Map 2, or a majority-minority (Black plus Hispanic) CVAP district, as in Demonstration Map 1. Either version of this CD would be a reasonably compact district in which minorities would have the opportunity to elect their preferred candidates.

103. Demonstration Map 2 shows that it is possible to configure Demonstration CD-12 as a majority HCVAP district in the Dallas-Fort Worth area. Demonstration CD-33 would remain a majority Black plus Hispanic CVAP district as in the Enacted Map.

Figure 10: Enacted Map and Demonstration Map 2 in the Dallas-Fort Worth Area



104. CD-12 and CD-33 under Demonstration Map 2 would be districts in which Hispanics have the opportunity to elect their preferred candidates. On average, Hispanic-preferred candidates won 70 percent of the vote in the precincts incorporated in Demonstration CD-12 and 61 percent of the vote in precincts in Demonstration CD-33 under Map 2. See Table 12.

105. Hispanics vote cohesively in the precincts incorporated into CD-12 and CD-33 in Demonstration Map 2. On average, 89 percent of Hispanics vote for Democratic candidates in CD-12, and 80 percent of Hispanics support Democratic candidates in CD-33. Whites are also cohesive: a majority of whites vote for candidates opposing the Hispanic-preferred candidates in Demonstration CD-12 and Demonstration CD-33. See Table 15.

106. Hispanics and Blacks vote cohesively in the primary elections in Demonstration CD-29 and Demonstration CD-33 under Demonstration Map 2. See Table 16.

107. CD-12 under Demonstration Map 2 is less compact than the analogous version of this district in Demonstration Map 1. Compared to CD-33 in the Enacted Map, which is also in the Dallas-Fort Worth area, it is more compact in its perimeter (Polsby-Popper) than Enacted CD-33, and somewhat less compact in its area (Reock) than Enacted CD-33. See Table 18. Demonstration Map 2 CD-33 is somewhat more compact than Prior CD-33. Hence it is possible to draw two majority-minority districts (Demonstration CD-12 and CD-33) that are as compact as Enacted CD-33 in roughly the same location as Enacted CD-33. In this regard, Enacted CD-33 interferes with the creation of two reasonably compact majority-minority districts in Dallas-Fort Worth, one of which could be configured to be majority HCVAP district.

108. Demonstration Map 2 shifts CD-32 westward to accommodate changes in the configuration of CD-12 in Dallas County. This makes Demonstration CD-32 into a majority Non-Hispanic white district under Demonstration Map 2. See Table 9. However, voting is

not polarized in Demonstration CD-32, so the candidates preferred by Blacks and Hispanics would also be able to win in this district.[8] See Table 15.

109. Thus, Demonstration Map 2 shows that it is possible to draw five more performing majority-HCVAP districts than the Enacted Map in areas where voting is polarized along racial lines – two additional majority-HCVAP districts in South and West Texas (CD-10 and CD-21), one reconfigured majority-HCVAP district that allows it to perform for Hispanic-preferred candidates (CD-23), one additional majority-HCVAP district in Dallas-Fort Worth (CD-12), and one additional majority-HCVAP district in Harris County (CD-38) in which Hispanics vote cohesively against white bloc voting to allow them an opportunity to elect their preferred candidates.

V Findings Related to the Texas House District Map

A. Harris County

110. Harris county has 4,713,145 people, according to the 2020 Census Enumeration. The ideal population of a House District (HD) for the Texas State House is 194,303 people, plus or minus five percent. Thus, Harris County has sufficient population for 24.26 HDs. In the Enacted Map there are 24 HDs in Harris.

111. The 2020 enumerated population of Harris County is 43.0 percent Hispanic, 20.7

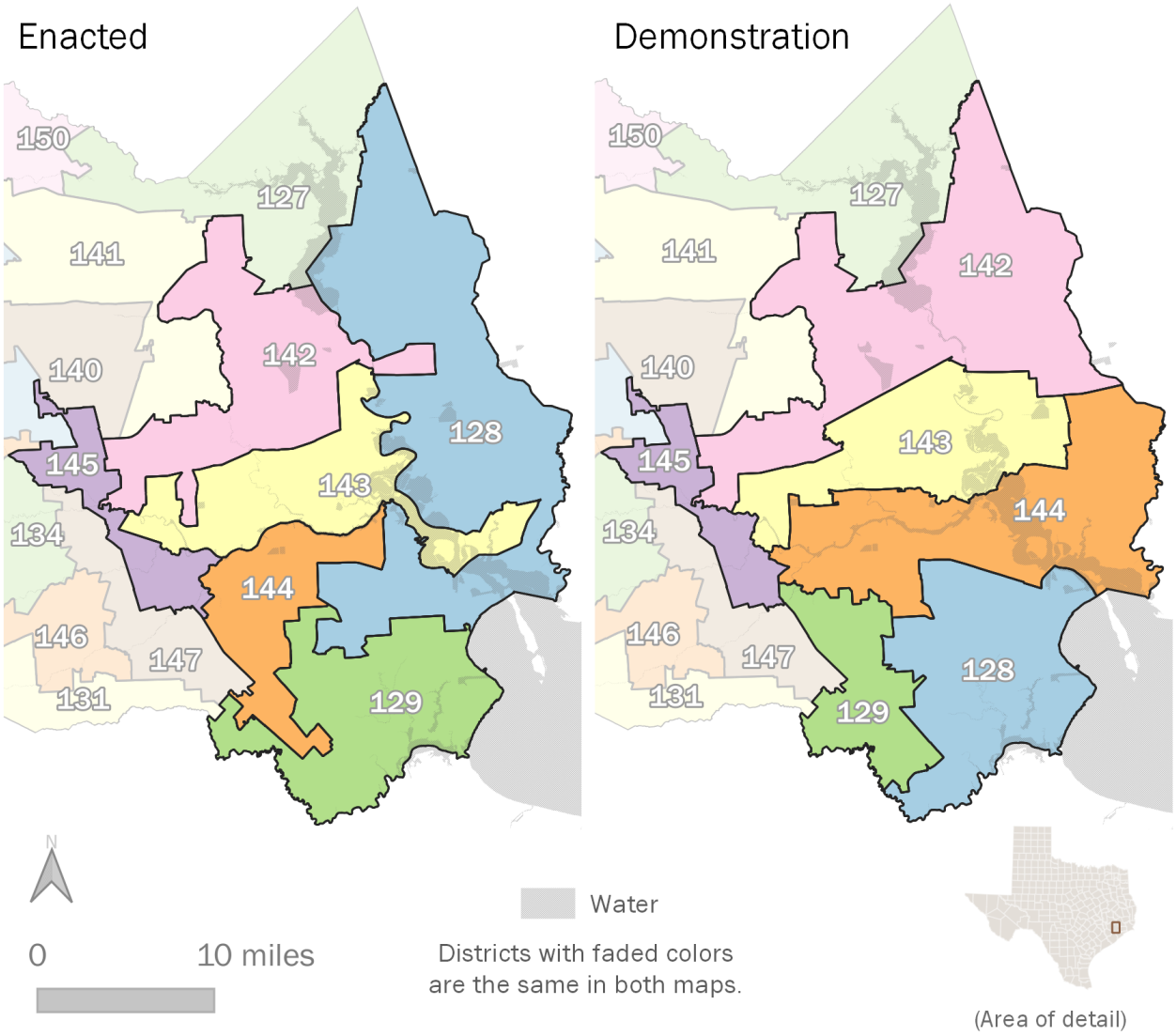
[8]It should be noted another configuration of CD-32 is possible. Specifically, it is possible to change the boundaries of Demonstration Map 2 CD-32 to make it majority Black plus Hispanic. That could be accomplished by rotating the populations of the CDs in Dallas and Tarrant Counties clockwise, keeping Demonstration Map 2 CD-12 unchanged. In that alternative, Demonstration Map 2 CD-32 would move south and east and would vacate north Dallas; CD-30 would shift westward, taking areas from CD-6 and CD-33. Demonstration Map 1 keeps CD-32 as it is in SB 6.

percent Black, and 8.3 percent Asian; it is 27.7 percent white. According to the 2016-2020 American Community Survey, the CVAP of Harris County is 61.4 percent non-white and 38.6 percent white. The CVAP of Harris County is 31.0 percent Hispanic, 22.7 percent Black, and 6.9 percent Asian.

112. Under the Enacted Map, there are 14 HDs in Harris County that are majority non-white CVAP and 10 HDs in Harris County that are majority white CVAP. HD-140, HD-143, HD-144, and HD-145 are majority Hispanic CVAP (HCVAP). HD-141 and HD-146 are majority Black CVAP (BCVAP). HD-131, HD-135, HD-137, HD-139, HD-142, HD-147, HD-148, and HD-149 are majority Black plus Hispanic CVAP. See table 19.

113. HD-128, HD-129, HD-142, HD-143, HD-144, and HD-145 are located in the eastern part of Harris County. The configuration of HD-128, HD-129, HD-143 and HD-144 in the Enacted Map are noticeably irregular. HD-128 forms a long arc along the eastern Harris County border. HD-142 and HD-143 extend arms into HD-128. HD-143 extends a narrow arm that follows the San Jacinto River to connect Baytown to the rest of the district. The average perimeter regularity (Polsby-Popper) score for HD-128, HD-129, HD-143 and HD-144 is .153. The perimeter compactness (Polsby-Popper) score for the entire Texas HD map is .254. See Table 25. Hence, the districts in southeastern Harris County are substantially less compact than the typical HD in the State of Texas.

Figure 11: Enacted and Demonstration State House Map in Harris County



114. The Demonstration Map renders the HDs in southeastern Harris County to be, on the whole, more compact districts than under the Enacted Map. The Demonstration Map makes HD-128, HD-142, HD-143, and HD-144 substantially more compact. See Table 25. Demonstration HD-129 has a more regular border than Enacted HD-129 and, thus, a higher perimeter compactness (Polsby-Popper) score. This improvement occurs because the arm of Enacted HD-144 that extended into HD-129 in the Enacted Map – and included majority Hispanic precincts intHD-144 – is removed from the configuration of HD-129 and HD-144 under the Demonstration Map. This change improves the area and perimeter of HD-144. The area dispersion (Reock) of Demonstration HD-129 is slightly lower than in the Demonstration Map under the Enacted Map, but the Demonstration HD-129 would still be more compact in both area and perimeter than the average HD in the Enacted Map. See Table 25. Overall, these changes result in substantial improvement in the configuration of the HDs in eastern Harris County. The average Reock of these five HDs is .333 under the Demonstration Map, compared to .295 under the Enacted Map. The average Polsby-Popper of these five HDs is .222 under the Demonstration Map, compared to .153 under the Enacted Map. Block equivalency files for the House Demonstration Map will be produced simultaneously with this report.

115. In improving the compactness of the districts in eastern Harris County, Demonstration HD-129 emerges as a majority HCVAP district. Specifically, the non-compact arm of Enacted HD-144 that cuts into the western side of Enacted HD-129 has a largely Hispanic population. There are 52,237 people in this cut, 56.6 percent of whom are Hispanic.[9] The CVAP in this area is 46.6 percent Hispanic, 17.4 percent Black, and 8.9 percent Asian. It is not necessary to configure Enacted HD-129 in this way in order to make Enacted HD-144 into a majority Hispanic HD because the remainder of Enacted HD-144 is 75.3 percent Hispanic.

[9]These are precincts 347, 755, 715, 393, 842, 417, 476, and 76.

116. Enacted HD-129 is racially polarized. Ecological Inference estimates show that 56 percent of Hispanics in Enacted HD-129 prefer Democrats, compared to just 28 percent of whites. See Table 23. The district as it is configured in the Enacted Map, however, does not afford Hispanics the opportunity to elect their preferred candidates. Candidates preferred by Hispanics won, on average, only 38.7 percent of votes cast and received the majority of votes in none of the 35 elections analyzed.

117. Demonstration HD-129 undoes the split of the minority population in this area, and shifts HD-129 westward. Doing so accommodates a very compact configuration of Demonstration HD-128. The resulting configuration of Demonstration HD-129 is 52.0 percent HCVAP. See Table 20.

118. Hispanics in Demonstration HD-129 vote cohesively. Ecological Inference analyses (Table 24) estimate that 78 percent of Hispanics in Demonstration HD-129 vote for Democratic candidates.

119. Voting is racially polarized in Demonstration HD-129. Whites in Demonstration HD-129 vote cohesively and for candidates opposed by majorities of Hispanics. Ecological Inference analyses estimate that just 27 percent of whites in Demonstration HD-129 vote for Democratic candidates. See Table 24. (See Table A10 for Ecological Regression estimates.) Thus, a substantial majority of whites in this part of Harris County vote for candidates and parties opposed to the candidates and parties preferred by majorities of Hispanics.

120. Demonstration HD-129 is a district in which Hispanics would have the opportunity to elect their preferred candidates. Across eleven statewide general elections conducted in precincts in Demonstration HD-129, Hispanic-preferred candidates won, on average, 53 per-

cent of the vote, and those candidates won 94 percent of contests. See Table 22.

121. Demonstration HD-129 shows that there is a sufficient number of adult citizen Hispanics in this part of Harris County to create a reasonably compact majority HCVAP HD, where voting is racially polarized and where Hispanics would have the opportunity to elect their preferred candidates. The Enacted Map creates irregularly shaped districts in this area, especially HD-144, that divide the Hispanic vote in ways that prevent the emergence of an additional majority HCVAP district in this part of Harris. The Demonstration Map shows that a reasonably compact majority HCVAP district that will perform for Hispanic voters can be configured.

B. Tarrant County

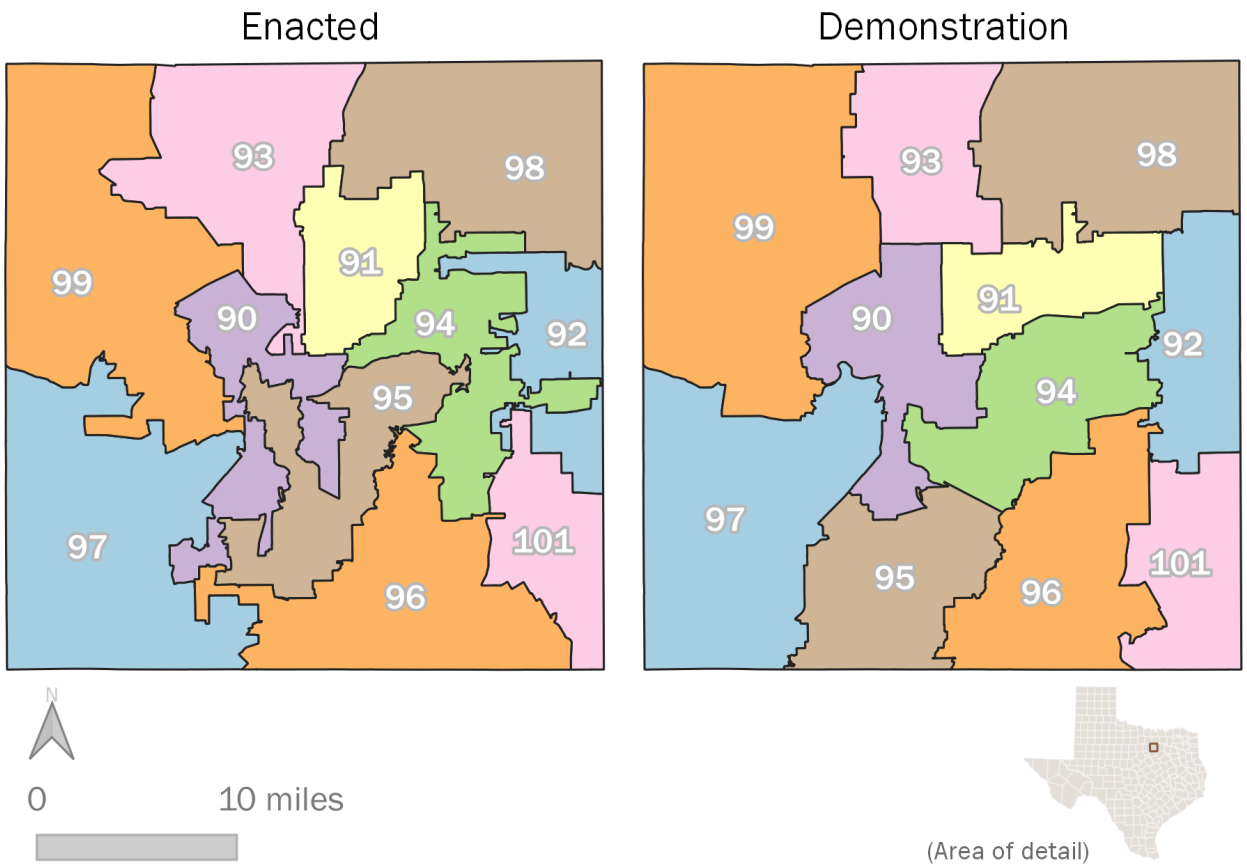
122. Tarrant County has a population of 2,110,640 people. The county has sufficient population for 10.9 HDs, and it has eleven HDs in the Enacted Map.

123. According to the 2020 Census Enumeration, Tarrant County is a majority-minority county: 57.1 percent of the total population are non-white and 42.9 percent are white. Tarrant County has a minority VAP of 53.1 percent and white VAP of 46.9 percent, and it has a minority CVAP of 44.2 percent and white CVAP of 55.8 percent.

124. Seven of the eleven HDs in Tarrant County are majority white districts. A majority of the total population and of the CVAP are white in Enacted HD-91,Enacted HD-93, Enacted HD-94, Enacted HD-96, Enacted HD-97, Enacted HD-98, and Enacted HD-99. There are four majority-minority HDs in the Enacted Map: HD-90, HD-92, HD-95, and HD-101. The majority of adult citizens in Enacted HD-90 are Hispanic. The majority of the CVAP in Enacted HD-92, Enacted HD-95 and Enacted HD-101 are Black or Hispanic. See Table 19.

125. The configurations of most of the HDs in Tarrant County have highly irregular shapes and very low compactness scores. See Table 25. In particular, Enacted HD-90 and Enacted HD-94 have the lowest perimeter compactness (Polsby-Popper) scores in the entire map. Enacted HD-90 and Enacted HD-94 have Polsby-Popper scores of .071 and .076, respectively. Enacted HD-95 has the 6th lowest score, and Enacted HD-92, the 7th lowest. Enacted HD-95 has a Polsby-Popper score of .091 and Enacted HD-92 has a Polsby-Popper score of .098. These low scores indicate that the boundaries of the districts have very irregular sides and deep indentations.

Figure 12: Enacted and Demonstration State House Map in Tarrant County



126. As a reference, consider the compactness measures applied to a square. The Polsby-Popper score (perimeter regularity) measures the area of the district relative to the area of a circle that has the same perimeter as the district. The Reock score (area dispersion) measures the area of the district relative to the area of the smallest circle that inscribes the district. A perfectly square district would have a Polsby-Popper score of .785 and a Reock score of .637. Tarrant County itself is almost a perfect square. Tarrant County has a Polsby-Popper score of .779 and a Reock of .626.

127. The average perimeter compactness score (Polsby-Popper) in the Enacted Map's Tarrant County HDs is .234, and the average area dispersion (Reock) is .382. By contrast, the average perimeter compactness score in the Demonstration Map's Tarrant County HDs is .375, and the average area dispersion is .467.

128. Of particular concern is how the Enacted Map treats central and eastern Fort Worth. The Enacted Map divides the eastern half of Fort Worth across Enacted HD-90, Enacted HD-94, and Enacted HD-95. This configuration splits a predominately minority area. The eastern half of Fort Worth, which extends from the North Freeway in the center of the city to the Dallas County border, has approximately 200,000 people, and it is a heavily minority population. Forty-four percent of the CVAP are Black in this part of Fort Worth, another 24 percent of the CVAP are Hispanic, and 28 percent are white adult citizens.

129. The non-compact configuration of Enacted HD-90 and Enacted HD-95 were not necessary to create minority HDs in Tarrant County. The Demonstration Map shows that HD-90 and HD-95 could be drawn much more compactly while remaining majority-minority districts. Under the Demonstration Map, HD-90 is a majority HCVAP district. See Table 20. The area dispersion (Reock) of HD-90 improves from .307 under the Enacted Map to .420 under the Demonstration Map, and the perimeter dispersion (Polsby-Popper) improves

from .071 under the Enacted Map to .213 under the Demonstration Map. Thus, it was not necessary to draw a highly irregularly shaped district – Enacted HD-90 – to create majority Hispanic CVAP district in the center of Fort Worth.

130. Turning to HD-95, the Demonstration Map shows that the highly irregular shape of this district was not necessary to create a majority-minority HD. The area dispersion (Reock) of HD-95 improves from .273 under the Enacted Map to .455 under the Demonstration Map, and the perimeter dispersion (Polsby-Popper) improves from .091 under the Enacted Map to .355 under the Demonstration Map. Thus, it was not necessary to draw highly irregularly shaped districts (Enacted HD-90 and Enacted HD-95) in order to create majority-majority CVAP districts in the center of Tarrant County.

131. Making HD-90 and HD-95 more compact allows for a much more compact version of HD-94 to be drawn to the east of HD-90 and HD-95. Demonstration HD-94 covers the eastern half of the City of Fort Worth and parts of Arlington. It has an area dispersion (Reock) of .354 and a perimeter regularity (Polsby-Popper) of .270. By contrast, the version of HD-94 in the Enacted Map has roughly the same area dispersion (Reock of .369), but a much more irregular boundary. Enacted HD-94 has a perimeter regularity (Polsby-Popper) score of .076 – almost four times smaller than Demonstration HD-94.

132. Demonstration HD-94 keeps the neighborhoods in the eastern half of Fort Worth whole. The district that emerges is not only much more compact than Enacted HD-94, but it is also a majority-minority HD. Demonstration HD-94 is 41.3 percent Black CVAP, 19.9 percent Hispanic CVAP, and 33.9 percent white CVAP.

133. The more compact configuration of Demonstration HD-90, Demonstration HD-94, and Demonstration HD-95 has the further effect of improving the overall compactness

of surrounding districts. HD-92, also one of the most non-compact districts in the entire map, improves its perimeter regularity (Polsby-Popper) score from .098 to .350. See Table 25. The area and perimeter compactness of all but one HD in Tarrant County are improved upon reconfiguring HD-90, HD-94, and HD-95. Only HD-91 becomes less compact. Its area dispersion measure shrinks from .511 to .346, and its perimeter dispersion goes from .457 to .311. Both are still better than the average Reock and average Polsby-Popper in the entire State of Texas. The average area dispersion (Reock) of the 11 HDs in Tarrant County improves from .381 under the Enacted Map to .467 under the Demonstration Map. The average perimeter regularity (Polsby-Popper) of the 11 HDs in Tarrant County improves from .234 under the Enacted Map to .375 under the Demonstration Map. See Table 27. Under the Demonstration Map, the majority-minority HD's 90 and 95 are no longer among the least compact districts in the map.

134. HD-94, under both the Enacted Map and the Demonstration Map, exhibits a high degree of cohesion of Black and Hispanic voters in general elections. Ecological Inference and Ecological Regression estimates show that a majority of Black and a majority of Hispanic voters in Enacted HD-94 vote for Democrats. See Tables 23 and A9. Similarly, under the Demonstration Map, Ecological Regression estimates and Ecological Inference estimates show that a majority of Black and a majority of Hispanic voters in Demonstration HD-94 vote for Democrats. See Tables 24 and A10.

135. There is also a high degree of cohesion among Black and Hispanic voters in Primary Elections under Demonstration HD-94. In primary elections in which Blacks had a clear first choice candidate and in which Hispanics had a clear first choice candidate, the two groups preferred the same candidate 80 percent of the time. See Table 16.

136. HD-94, under both the Enacted Map and the Demonstration Map, exhibits racially

polarized voting between whites and Black or Hispanic voters. The Ecological Regression and Ecological Inference estimates show that a majority of white voters in Enacted HD-94 vote for candidates opposed to the candidates preferred by minority voters. See Tables 23 and A9. Similarly, Ecological Regression estimates and Ecological Inference estimates show that a majority of Black and a majority of white voters in Demonstration HD-94 vote for candidates opposed to the candidates preferred by minority voters. See Tables 24 and A10. Thus, Blacks and Hispanics coalesce in primaries and vote together cohesively in general elections in Demonstration HD-94. Further, voting is racially polarized in this area of Tarrant County, indicating the potential need for a majority-minority HD to represent the substantial minority population in eastern Fort Worth.

137. Demonstration HD-94 shows that it is possible to create a reasonably compact majority-minority district in this area in which Blacks and Hispanics vote cohesively together and in which Blacks and Hispanics would have the opportunity to elect their preferred candidates. The configuration of Demonstration HD-94 is far more compact than the configuration of the majority white CVAP district drawn in this area of Tarrant County.

C. Summary

138. The Enacted House Map created highly non-compact majority-minority opportunity districts in both Harris and Tarrant Counties. The Demonstration Map shows that more compact configurations of HDs in these areas are possible. Upon correcting the irregularity of HD boundaries, additional majority-minority opportunity districts emerge. The Demonstration Map shows that it is possible to create an additional, compact majority HCVAP district in Harris County in which Hispanics would have the ability to elect their preferred candidate. That district is Demonstration HD-129. In Tarrant County it is possible to draw much more compact versions of HD-90 and HD-95, which are majority-minority districts.

Doing so allows an additional, compact majority-minority district representing eastern Fort Worth – Demonstration HD-94.

VI Conclusions

139. Growth in the minority population, especially the Hispanic population, drove Texas's population growth and its gain of two additional congressional districts. Minority groups account for 95 percent of the total population growth and 80 percent of the growth of the adult citizen population in the state over the past decade. Today, according to the 2016-2020 American Community Survey, the state of Texas is 50.8 percent CVAP white and 49.2 percent CVAP non-white.

140. Despite that population growth, the Enacted Map creates 25 CDs where the candidates preferred by white voters have the ability to win and only 13 CDs where the candidates preferred by minority voters would have the opportunity to win elections.

141. The Demonstration Maps for both the Congressional Districts and State House Districts reveal that the boundaries in the Enacted Maps interfered with the emergence of additional minority opportunity districts. Demonstration Maps 1 and 2 reveal that it is possible to create 18 majority-minority CDs in which minorities would have the opportunity to elect their preferred candidates. Thus, it is possible to create at least 5 additional, reasonably compact, majority-minority districts in areas where voting is racially polarized and in which minorities will have the opportunity to elect their preferred candidates to the United States Congress. The Demonstration State House Map shows that it is also possible to create an additional compact majority Hispanic CVAP HD in Harris county and an additional compact majority Black plus Hispanic CVAP HD in Tarrant County.

142. The additional majority-minority districts presented in the Demonstration Maps for United States Congress and for the Texas State House emerge by making the existing configurations of HDs and CDs, on the whole more, compact than in the Enacted Map. This fact reveals that the often highly non-compact configurations of districts in both the Congressional and House District Maps interfere with the creation of additional minority opportunity districts.

VII Tables

Summary of Tables

The tables in this report are organized by Map and by Content, such as population or election results. The Table of Tables offers a guide to all tables in this report.

The statistics for the Enacted Map are presented in Table 3 (minority district summary),Table 7 (populations), Table 10 (election results), and Table 13 (racial group voting patterns). The statistics for Congressional Demonstration Map 1 are presented in Table 4 (minority district summary), Table 8 (populations), Table 11 (election results), and Table 14 (racial group voting patterns). The statistics for Congressional Demonstration Map 2 are presented in Table 5 (minority district summary), Table 9 (populations), Table 12 (election results), and Table 15 (racial group voting patterns). Primary election analyses for both Demonstration Maps are in Table 16, and compactness measures for the Enacted and Demonstration Map 1 are in Table 17, and the compactness measures for the Enacted Map and Demonstration Map 2 are in Table 18. Statistics for the Enacted State House Map are in Tables 19, 21, and 23. Statistics for the Demonstration State House Map are in Tables 20, 22, and 24.

The tables may be referenced by content. First, statistics on the population and CVAP of Texas are in Tables 1 and 2. Second, summary assessments of majority-minority CDs are in Tables 3, 4, and 5. Table 6 presents an accounting of majority-white and majority-minority CDs in the Enacted and Demonstration Maps. Third, Population and CVAP statistics for all CDs are in Tables 7, 8, and 9. Fourth, general election outcomes in every CD that is majority-minority are in Tables 10, 11, and 12. Fifth, EI estimates of vote preferences of racial groups in every CD that is majority-minority are in Tables 13, 14, and 15. Table 16 offers a summary assessment of Black and Hispanic Cohesion in Democratic Primaries in Dallas-Fort Worth and Harris County majority-minority CDs. Sixth, Tables 17 and 18 present the compactness measures of every CD in the Enacted and Demonstration Maps.

Finally, Tables 19-27 show the same set of analyses for the Enacted and Demonstration State House district plans.

Table of Tables

Table 1: Total Population in the State Texas, 2010 to 2020

Group	2010	2020	Growth
Hispanic	9,460,921	11,441,717	1,980,796
Asian Alone, Non-Hispanic	948,426	1,561,518	613,092
Black Alone, Non-Hispanic	2,886,825	3,444,712	557,887
Other Non-White*, Non-Hispanic	452,044	1,112,961	660,917
White, Non-Hispanic	11,397,345	11,584,597	187,252
Total Population	25,145,561	29,145,505	3,999,944

*Native American and Multi-race.

Table 2: Citizen Voting Age Population in the State of Texas, 2010 to 2020

Group	ACS 2006-2010	ACS 2015-2019	ACS 2016-2020	Growth
Hispanic	3,889,570	5,429,160	5,671,640	1,782,070
Asian Alone, Non-Hispanic	422,480	674,830	703,155	280,675
Black Alone, Non-Hispanic	1,945,155	2,383,950	2,420,695	475,540
Other Non-White*, Non-Hispanic	198,950	313,060	354,330	155,380
White, Non-Hispanic	8,820,810	9,380,330	9,429,005	608,195
Total Population	15,276,965	18,181,330	18,578,830	3,301,865

*Native American and Multi-race.

Table 3: Enacted Map (SB 6): Characteristics of Majority-Minority CDs

District	Minority Groups That Make a Majority	Are Blacks and Hispanics Cohesive in General Election?	Are White and Minority Voters Polarized	Minorities Have Opportunity to Elect Preferred Candidates
7	**B + H + A**	**Yes**	No	**Yes**
9	**B + H***	**Yes**	**Yes**	**Yes**
15	**H majority**	**Yes**	**Yes**	**Yes**
16	**H majority**	**Yes**	**Yes**	**Yes**
18	**B + H**	**Yes**	**Yes**	**Yes**
20	**H majority**	**Yes**	**Yes**	**Yes**
23	*H majority*	*Yes*	*Yes*	*No*
27	*B + H*	*Yes*	*Yes*	*No*
28	**H majority**	**Yes**	**Yes**	**Yes**
29	**H majority**	**Yes**	**Yes**	**Yes**
30	**B + H**	**Yes**	**Yes**	**Yes**
32	**B + H + A**	**Yes**	**Yes**	**Yes**
33	**B + H**	**Yes**	**Yes**	**Yes**
34	**H majority**	**Yes**	**Yes**	**Yes**
35	**B + H**	**Yes**	No	**Yes**

Summary

Number Functioning Majority Hispanic Districts: 6
Number of Polarized majority-minority CDs and Minorities Opportunity to Elect: 5
Number Non-Polarized Districts that are majority Hispanic or Black + Hispanic : 2
Number Non-Functioning majority-minority Districts: 2

Notes: B= Black, H=Hispanic, A=Asian. Bold means functioning opportunity district. Italic means majority-minority but not an opportunity district. Regular font means not polarized.
*Also, Black + Asian majority CVAP.

Table 4: Demonstration Map 1: Characteristics of Majority-Minority CDs

District	Minority Groups That Make a Majority	Are Blacks and Hispanics Cohesive in General Election?	Are White and Minority Voters Polarized	Minorities Have Opportunity to Elect Preferred Candidates
7	**B + H + A**	**Yes**	No	**Yes**
9	**B + H***	**Yes**	**Yes**	**Yes**
10	**H majority**	**Yes**	**Yes**	**Yes**
12	**B + H**	**Yes**	**Yes**	**Yes**
15	**H majority**	**Yes**	**Yes**	**Yes**
16	**H majority**	**Yes**	**Yes**	**Yes**
18	**B + H**	**Yes**	**Yes**	**Yes**
20	**H majority**	**Yes**	**Yes**	**Yes**
21	**H majority**	**Yes**	**Yes**	**Yes**
23	**H majority**	**Yes**	**Yes**	**Yes**
28	**H majority**	**Yes**	**Yes**	**Yes**
29	**B + H**	**Yes**	**Yes**	**Yes**
30	**B majority**	**Yes**	**Yes**	**Yes**
32	**B + H + A**	**Yes**	No	**Yes**
33	**B + H**	**Yes**	**Yes**	**Yes**
34	**H majority**	**Yes**	**Yes**	**Yes**
35	**H majority**	**Yes**	**Yes**	**Yes**
38	**H majority**	**Yes**	**Yes**	**Yes**

Summary

Number Functioning Majority Hispanic Districts: 11
Number of Polarized majority-minority CDs and Minorities Opportunity to Elect: 5
Number Non-Polarized Districts that are majority Hispanic or Black + Hispanic : 2
Number Non-Functioning majority-minority Districts: 0

Notes: B= Black, H=Hispanic, A=Asian. Bold means functioning opportunity district.
Italic means majority-minority but not an opportunity district.
*Also, Black + Asian majority CVAP.

Table 5: Demonstration Map 2: Characteristics of Majority-Minority CDs

District	Minority Groups That Make a Majority	Are Blacks and Hispanics Cohesive in General Election?	Are White and Minority Voters Polarized	Minorities Have Opportunity to Elect Preferred Candidates
7	**B + H + A**	**Yes**	No	**Yes**
9	**B + H ***	**Yes**	**Yes**	**Yes**
10	**H majority**	**Yes**	**Yes**	**Yes**
12	**H majority**	**Yes**	**Yes**	**Yes**
15	**H majority**	**Yes**	**Yes**	**Yes**
16	**H majority**	**Yes**	**Yes**	**Yes**
18	**B + H**	**Yes**	**Yes**	**Yes**
20	**H majority**	**Yes**	**Yes**	**Yes**
21	**H majority**	**Yes**	**Yes**	**Yes**
23	**H majority**	**Yes**	**Yes**	**Yes**
28	**H majority**	**Yes**	**Yes**	**Yes**
29	**H majority**	**Yes**	**Yes**	**Yes**
30	**B + H**	**Yes**	**Yes**	**Yes**
33	**B + H***	**Yes**	**Yes**	**Yes**
34	**H majority**	**Yes**	**Yes**	**Yes**
35	**H majority**	**Yes**	**Yes**	**Yes**
38	**H majority**	**Yes**	**Yes**	**Yes**

Summary

Number Functioning Majority Hispanic Districts: 13
Number Functioning Opportunity Districts that are Majority Black + Hispanic: 4
Number Non-Polarized Districts that are majority Hispanic or Black + Hispanic : 1
Number Non-Functioning majority-minority Districts: 0

Notes: B= Black, H=Hispanic, A=Asian. Bold means functioning opportunity district.
Italic means majority-minority but not an opportunity district.
*Also, Black + Asian majority CVAP.

Table 6: Number of Majority White and Majority-Minority CDs Under the Enacted Map and Demonstration Maps 1 and 2

District	Enacted Map	Demonstration Map 1	Demonstration Map 2
Majority White and White Opportunity to Elect	23	20	21
Majority White and Whites No Opportunity to Elect	0	0	0
Majority-Minority and Minority Opportunity to Elect	13*	18*	17**
Majority-Minority and Minority No Opportunity to Elect	2	0	0

*Includes two CDs that are not racially polarized (CDs 7 and 32).
**Includes one CD that is not racially polarized (CD 7). Demonstration Map 2 CD 32 is not included in this count because it is majority white, but it is nevertheless a district in which minorities have the opportunity to elect their preferred candidates, and it could be reconfigured as an 18th majority-minority district.

Table 7: Enacted Map: Total and Citizen Voting Age Populations of CDs

District	Total (Census)	CVAP	White CVAP	Hispanic CVAP (ACS 2016-2020)	Black CVAP	Asian CVAP
1	766,987	546,079	69.6%	8.8%	19.6%	0.8%
2	766,987	463,946	63.9%	20.1%	11.6%	3.0%
3	766,987	476,720	69.4%	10.5%	10.3%	8.2%
4	766,987	494,015	73.4%	9.6%	9.2%	5.7%
5	766,987	483,901	62.1%	17.5%	14.8%	4.0%
6	766,987	462,576	59.2%	21.3%	15.4%	2.7%
7	766,987	445,558	39.1%	21.1%	20.4%	17.7%
8	766,987	458,532	58.7%	21.7%	13.6%	4.6%
9	766,987	436,712	19.1%	24.8%	47.1%	8.1%
10	766,987	505,400	67.0%	16.9%	11.5%	3.0%
11	766,987	512,227	52.8%	32.5%	11.4%	1.5%
12	766,987	509,404	67.2%	17.7%	10.6%	2.9%
13	766,987	534,481	69.4%	20.0%	7.1%	1.5%
14	766,987	529,563	61.5%	17.8%	17.2%	2.3%
15	766,987	419,276	22.2%	74.6%	1.6%	1.1%
16	766,986	466,497	15.5%	78.7%	3.7%	1.0%
17	766,987	537,255	63.4%	17.5%	16.2%	1.7%
18	766,987	452,282	24.3%	29.1%	40.6%	5.0%
19	766,987	535,725	58.5%	32.7%	6.6%	0.9%
20	766,987	528,397	22.3%	68.5%	6.0%	2.0%
21	766,987	547,867	66.8%	26.3%	3.8%	1.6%
22	766,987	465,806	53.0%	23.7%	11.7%	10.2%
23	766,987	454,836	34.6%	58.1%	4.1%	1.8%
24	766,987	511,951	73.1%	11.9%	7.1%	6.1%
25	766,987	536,691	69.3%	15.1%	11.6%	2.3%
26	766,987	487,002	69.9%	13.1%	9.1%	6.0%
27	766,987	541,446	43.7%	49.4%	4.8%	1.2%
28	766,987	457,355	22.9%	69.7%	5.7%	0.9%
29	766,987	385,847	14.0%	64.8%	17.9%	2.8%
30	766,987	479,573	25.2%	21.5%	49.0%	3.2%
31	766,987	507,372	68.7%	18.1%	8.5%	2.3%
32	766,987	457,446	46.9%	21.0%	23.8%	6.6%
33	766,987	384,471	24.8%	42.9%	26.7%	4.4%
34	766,987	421,593	11.8%	86.8%	0.6%	0.5%
35	766,987	479,556	33.8%	47.6%	14.9%	2.1%
36	766,987	501,766	61.1%	21.3%	13.1%	3.2%
37	766,987	545,529	63.0%	22.2%	6.8%	5.6%
38	766,987	485,443	61.4%	18.7%	10.4%	8.0%

Notes: Rows in grey are districts where a majority of the citizen voting age population is non-white.

Table 8: Demonstration Map 1: Total and Citizen Voting Age Populations of CDs

District	Total (Census)	CVAP	White CVAP	Hispanic CVAP (ACS 2016-2020)	Black CVAP	Asian CVAP
1	766,987	546,079	69.6%	8.8%	19.6%	0.8%
2	766,987	482,785	63.0%	17.7%	11.2%	6.8%
3	766,987	476,720	69.4%	10.5%	10.3%	8.2%
4	766,987	494,015	73.4%	9.6%	9.2%	5.7%
5	766,987	483,901	62.1%	17.5%	14.8%	4.0%
6	766,987	522,451	70.3%	15.5%	11.3%	1.3%
7	766,987	445,558	39.1%	21.1%	20.4%	17.7%
8	766,987	457,065	58.5%	21.8%	13.6%	4.6%
9	766,987	442,341	19.7%	22.9%	48.3%	8.2%
10	766,987	469,991	38.1%	50.5%	8.8%	1.5%
11	766,987	525,433	66.8%	19.9%	9.5%	1.9%
12	766,987	411,733	35.9%	37.6%	19.2%	5.9%
13	766,987	534,481	69.4%	20.0%	7.1%	1.5%
14	766,987	529,563	61.5%	17.8%	17.2%	2.3%
15	766,987	430,810	20.3%	77.2%	1.4%	0.7%
16	766,987	462,989	27.4%	65.3%	4.7%	1.3%
17	766,987	534,391	62.4%	18.7%	15.9%	1.7%
18	766,987	450,465	24.6%	30.1%	40.4%	3.8%
19	766,987	535,725	58.5%	32.7%	6.6%	0.9%
20	766,987	538,332	37.7%	50.7%	8.3%	2.1%
21	766,987	518,315	36.8%	52.6%	6.6%	2.4%
22	766,987	465,806	53.0%	23.7%	11.7%	10.2%
23	766,987	466,191	24.1%	72.0%	2.6%	0.4%
24	766,987	511,951	73.1%	11.9%	7.1%	6.1%
25	766,987	532,161	77.4%	13.8%	5.6%	1.6%
26	766,987	487,002	69.9%	13.1%	9.1%	6.0%
27	766,987	516,767	67.2%	16.8%	12.0%	2.8%
28	766,986	415,528	18.3%	78.5%	2.0%	1.0%
29	766,987	428,624	39.6%	36.6%	16.6%	6.0%
30	766,987	464,244	24.3%	20.1%	50.8%	3.6%
31	766,987	507,372	68.7%	18.1%	8.5%	2.3%
32	766,987	457,446	46.9%	21.0%	23.8%	6.6%
33	766,987	441,944	37.1%	30.6%	27.5%	3.4%
34	766,987	492,290	23.8%	72.0%	2.5%	1.1%
35	766,987	500,851	37.2%	50.3%	9.6%	1.5%
36	766,987	497,301	70.6%	14.8%	11.5%	1.7%
37	766,987	545,529	63.0%	22.2%	6.8%	5.6%
38	766,987	425,947	29.8%	53.4%	11.9%	4.1%

Notes: Rows in grey are districts where a majority of the citizen voting age population is non-white.

Table 9: Demonstration Map 2: Total and Citizen Voting Age Populations of CDs

District	Total (Census)	CVAP	White CVAP	Hispanic CVAP (ACS 2016-2020)	Black CVAP	Asian CVAP
1	766,987	545,635	69.6%	8.8%	19.7%	0.8%
2	766,987	482,454	55.7%	20.2%	13.4%	9.2%
3	766,987	477,054	69.7%	10.5%	10.3%	7.8%
4	766,987	491,598	72.9%	9.7%	9.2%	6.1%
5	766,987	516,983	69.3%	12.3%	12.7%	4.0%
6	766,987	529,090	72.8%	15.9%	8.2%	1.5%
7	766,987	445,678	39.2%	21.1%	20.4%	17.7%
8	766,987	465,565	68.4%	16.9%	8.8%	4.6%
9	766,987	449,908	25.8%	21.0%	40.5%	11.6%
10	766,987	469,991	38.1%	50.5%	8.8%	1.5%
11	766,987	525,433	66.8%	19.9%	9.5%	1.9%
12	766,987	369,450	26.3%	52.4%	17.6%	2.7%
13	766,987	534,481	69.4%	20.0%	7.1%	1.5%
14	766,987	512,908	59.1%	17.2%	19.4%	3.1%
15	766,987	430,810	20.3%	77.2%	1.4%	0.7%
16	766,987	462,989	27.4%	65.3%	4.7%	1.3%
17	766,987	533,930	62.4%	18.7%	15.9%	1.7%
18	766,987	465,626	27.4%	26.0%	42.2%	3.2%
19	766,987	535,725	58.5%	32.7%	6.6%	0.9%
20	766,987	538,332	37.7%	50.7%	8.3%	2.1%
21	766,987	518,315	36.8%	52.6%	6.6%	2.4%
22	766,987	474,186	53.8%	26.0%	13.3%	5.8%
23	766,987	466,191	24.1%	72.0%	2.6%	0.4%
24	766,987	481,304	64.3%	13.0%	12.3%	8.4%
25	766,987	514,946	74.5%	15.9%	5.2%	2.6%
26	766,987	489,086	70.2%	13.0%	9.1%	6.0%
27	766,987	516,767	67.2%	16.8%	12.0%	2.8%
28	766,986	415,528	18.3%	78.5%	2.0%	1.0%
29	766,987	388,277	21.1%	51.4%	21.1%	5.5%
30	766,987	479,636	26.5%	20.2%	49.7%	2.5%
31	766,987	507,372	68.7%	18.1%	8.5%	2.3%
32	766,987	458,386	52.3%	21.3%	19.6%	5.3%
33	766,987	476,939	40.4%	20.9%	32.2%	5.0%
34	766,987	492,290	23.8%	72.0%	2.5%	1.1%
35	766,987	500,851	37.2%	50.3%	9.6%	1.5%
36	766,987	522,782	77.4%	11.6%	8.7%	0.9%
37	766,987	545,529	63.0%	22.2%	6.8%	5.6%
38	766,987	418,073	27.4%	53.0%	14.9%	3.8%

Notes: Rows in grey are districts where a majority of the citizen voting age population is non-white. District 12 in demonstration map 2 is equivalent to district 37 in Plan C2163.

Table 10: Enacted Map: General Election Results in CDs

District	Average Vote Share of Minority Preferred Candidate	Number of Elections Minority Preferred Candidate Wins	Number of Elections Minority Preferred Candidate Loses
7	61%	34	1
9	77%	34	1
10	36%	0	35
12	37%	0	35
15	53%	28	7
16	69%	34	1
18	74%	34	1
20	67%	34	1
21	35%	0	35
23	45%	2	33
27	38%	0	35
28	57%	34	1
29	72%	34	1
30	77%	34	1
32	61%	33	2
33	75%	34	1
34	63%	34	1
35	72%	34	1
38	35%	0	35

Notes: VTD election data from the Texas Legislative Council. Elections used in the analysis are all elections for US President, US Senate, US House, Governor, Lt. Governor, Attorney General, State Supreme Court, Court of Criminal Appeals, Agricultural Commissioner, Comptroller, Land Commissioner, and Railroad Commissioner, for 2016, 2018, and 2020.

Table 11: Demonstration Map 1: General Election Results in CDs

District	Average Vote Share of Minority Preferred Candidate	Number of Elections Minority Preferred Candidate Wins	Number of Elections Minority Preferred Candidate Loses
7	61%	34	1
9	77%	34	1
10	57%	34	1
12	66%	34	1
15	55%	34	1
16	53%	34	1
18	71%	34	1
20	53%	31	4
21	51%	25	10
23	53%	34	1
27	34%	0	35
28	56%	34	1
29	53%	32	3
30	75%	34	1
32	61%	33	2
33	62%	34	1
34	54%	33	2
35	54%	34	1
38	53%	33	2

Notes: VTD election data from the Texas Legislative Council. Elections used in the analysis are all elections for US President, US Senate, US House, Governor, Lt. Governor, Attorney General, State Supreme Court, Court of Criminal Appeals, Agricultural Commissioner, Comptroller, Land Commissioner, and Railroad Commissioner, for 2016, 2018, and 2020.

Table 12: Demonstration Map 2: General Election Results in CDs

District	Average Vote Share of Minority Preferred Candidate	Number of Elections Minority Preferred Candidate Wins	Number of Elections Minority Preferred Candidate Loses
7	61%	34	1
9	68%	34	1
10	57%	34	1
12	70%	34	1
15	55%	34	1
16	53%	34	1
18	71%	34	1
20	53%	31	4
21	51%	25	10
23	53%	34	1
27	34%	0	35
28	56%	34	1
29	67%	34	1
30	77%	34	1
32	55%	30	5
33	61%	34	1
34	54%	33	2
35	54%	34	1
38	56%	34	1

Notes: VTD election data from the Texas Legislative Council. Elections used in the analysis are all elections for US President, US Senate, US House, Governor, Lt. Governor, Attorney General, State Supreme Court, Court of Criminal Appeals, Agricultural Commissioner, Comptroller, Land Commissioner, and Railroad Commissioner, for 2016, 2018, and 2020.

Table 13: Enacted: General Election Vote Preference By Racial Group - EI Estimates - Congressional Districts

	Percent Democratic						Polarization	
District	White	[min,max]	Black	[min,max]	Hispanic	[min,max]	B-W	H-W
7	56	[43, 68]	78	[62, 88]	74	[45, 88]	22	18
9	51	[42, 61]	96	[87, 97]	81	[72, 86]	45	30
15	11	[10, 13]	47	[33, 63]	76	[64, 86]	36	64
16	25	[15, 41]	50	[44, 61]	84	[77, 90]	24	59
18	51	[38, 62]	96	[94, 96]	78	[65, 85]	45	27
20	36	[22, 55]	66	[42, 77]	84	[79, 89]	30	48
23	21	[12, 29]	57	[41, 69]	73	[61, 81]	37	53
27	12	[10, 15]	64	[50, 72]	86	[80, 90]	51	73
28	18	[11, 30]	87	[82, 90]	78	[65, 93]	69	60
29	39	[28, 53]	88	[85, 90]	84	[69, 93]	48	45
30	54	[40, 67]	95	[75, 97]	81	[76, 87]	42	28
32	54	[41, 63]	81	[68, 90]	85	[70, 90]	27	31
33	54	[44, 62]	93	[91, 94]	88	[83, 92]	39	34
34	22	[13, 33]	50	[27, 83]	76	[64, 85]	28	53
35	63	[46, 74]	79	[70, 88]	83	[73, 90]	15	20

Notes: VTD election data from the Texas Legislative Council. See text for list of elections used in the analysis. Ecological Inference (EI) results estimated using the EI package in R. The "[min,max]" columns report the minimum and maximum estimated percent of each racial group's Democratic support across all elections analyzed.

Table 14: DM1: General Election Vote Preference By Racial Group - EI Estimates - Congressional Districts

	Percent Democratic						Polarization	
District	White	[min,max]	Black	[min,max]	Hispanic	[min,max]	B-W	H-W
7	56	[41, 66]	78	[63, 90]	75	[50, 87]	22	19
9	54	[43, 63]	96	[91, 97]	80	[71, 85]	42	25
10	34	[25, 47]	89	[84, 92]	85	[76, 89]	55	51
12	52	[40, 62]	85	[79, 90]	86	[81, 90]	33	34
15	12	[9, 13]	53	[33, 71]	76	[65, 86]	41	65
16	11	[9, 17]	52	[39, 70]	83	[64, 88]	41	72
18	37	[23, 47]	94	[93, 95]	84	[73, 88]	57	46
20	33	[20, 44]	78	[72, 85]	87	[79, 91]	45	54
21	22	[14, 29]	78	[62, 85]	84	[77, 88]	56	63
23	9	[7, 12]	47	[31, 60]	80	[71, 87]	38	71
28	9	[7, 10]	42	[35, 53]	77	[63, 91]	34	68
29	35	[24, 45]	92	[88, 94]	86	[78, 90]	57	51
30	37	[26, 47]	96	[85, 97]	85	[79, 89]	59	47
32	54	[41, 64]	81	[68, 94]	84	[72, 90]	27	31
33	37	[25, 44]	92	[91, 93]	84	[80, 88]	55	47
34	19	[14, 24]	70	[55, 78]	78	[69, 86]	51	59
35	29	[15, 39]	78	[73, 83]	85	[80, 89]	49	57
38	15	[9, 19]	83	[78, 88]	85	[77, 92]	68	71

Notes: VTD election data from the Texas Legislative Council. Elections used in the analysis are all elections for US President, US Senate, US House, Governor, Lt. Governor, Attorney General, State Supreme Court, Court of Criminal Appeals, Agricultural Commissioner, Comptroller, Land Commissioner, and Railroad Commissioner, for 2016, 2018, and 2020. Ecological Inference (EI) results estimated using the EI package in R. The "[min,max]" columns report the minimum and maximum estimated percent of each racial group's Democratic support across all elections analyzed.

Table 15: DM2: General Election Vote Preference By Racial Group - EI Estimates - Congressional Districts

	Percent Democratic						Polarization	
District	White	[min,max]	Black	[min,max]	Hispanic	[min,max]	B-W	H-W
7	56	[41, 65]	79	[67, 86]	73	[56, 88]	23	17
9	42	[33, 53]	95	[72, 97]	77	[69, 84]	54	36
10	33	[26, 44]	89	[86, 91]	85	[77, 89]	56	52
12	43	[33, 49]	89	[79, 92]	89	[83, 93]	45	46
15	12	[9, 14]	52	[33, 64]	76	[65, 86]	40	64
16	11	[9, 19]	52	[41, 63]	83	[61, 90]	42	72
18	43	[30, 52]	96	[95, 97]	82	[70, 87]	53	40
20	33	[19, 47]	77	[63, 85]	87	[77, 91]	44	53
21	21	[14, 29]	78	[65, 88]	85	[79, 89]	57	63
23	9	[7, 12]	47	[34, 65]	80	[71, 86]	38	71
28	9	[8, 10]	42	[32, 56]	77	[62, 91]	33	68
29	31	[17, 45]	86	[81, 89]	86	[77, 92]	55	55
30	50	[39, 60]	95	[82, 97]	79	[74, 84]	45	28
32	51	[39, 64]	71	[57, 86]	76	[68, 86]	20	25
33	39	[27, 47]	92	[89, 94]	80	[72, 84]	53	41
34	19	[14, 25]	70	[53, 78]	78	[68, 86]	51	59
35	28	[16, 37]	79	[72, 85]	85	[80, 89]	51	57
38	15	[10, 27]	86	[82, 90]	83	[72, 90]	71	68

Notes: VTD election data from the Texas Legislative Council. Elections used in the analysis are all elections for US President, US Senate, US House, Governor, Lt. Governor, Attorney General, State Supreme Court, Court of Criminal Appeals, Agricultural Commissioner, Comptroller, Land Commissioner, and Railroad Commissioner, for 2016, 2018, and 2020. Ecological Inference (EI) results estimated using the EI package in R. The "[min,max]" columns report the minimum and maximum estimated percent of each racial group's Democratic support across all elections analyzed.

Table 16: Democratic Primary Group Agreement - EI Results - Summary Table

District	N Cases	Single Preference			Both Groups	
		Black	Hispanic	Both	Coalesce	Disagree
DM1 CD12	21	17 (81.0%)	18 (85.7%)	16 (76.2%)	15 (93.8%)	1 (6.2%)
DM1 CD29	21	16 (76.2%)	17 (81.0%)	15 (71.4%)	13 (86.7%)	2 (13.3%)
DM1 CD33	21	18 (85.7%)	18 (85.7%)	17 (81.0%)	14 (82.4%)	3 (17.6%)
DM2 CD29	21	17 (81.0%)	18 (85.7%)	15 (71.4%)	11 (73.3%)	4 (26.7%)
DM2 CD33	21	17 (81.0%)	15 (71.4%)	15 (71.4%)	14 (93.3%)	1 (6.7%)
HD94	21	18 (85.7%)	15 (71.4%)	15 (71.4%)	12 (80.0%)	3 (20.0%)

Notes: VTD election data from the Texas Legislative Council. Elections used in the analysis were Democratic primary and Democratic primary runoff elections for US President, US Senate, Governor, Lt. Governor, State Supreme Court, Court of Criminal Appeals, Comptroller, Land Commissioner, and Railroad Commissioner, for 2016, 2018, and 2020. A group has a Single Preference if one candidate wins a plurality of votes, and the estimated vote share of that candidate is statistically distinguishable from the vote share of the second place candidate. See Paragraph 19 for further discussion.

Table 17: Compactness of CDs Under SB 6 and Demonstration Map 1

	SB 6		Demonstration Map 1	
	Area Dispersion	Perimeter	Area Dispersion	Perimeter
District	(Reock)	(Polsby-Popper)	(Reock)	(Polsby-Popper)
1	0.3428	0.1663	0.3428	0.1663
2	0.3927	0.2315	0.3200	0.1725
3	0.4381	0.3341	0.4381	0.3341
4	0.2172	0.0762	0.2172	0.0762
5	0.2990	0.1494	0.2990	0.1494
6	0.2598	0.1520	0.2776	0.2094
7	**0.2222**	**0.0914**	**0.2222**	**0.0914**
8	0.2904	0.2292	0.2940	0.2321
9	**0.4280**	**0.1617**	**0.4544**	**0.1601**
10	0.3421	0.1871	**0.3166**	**0.2582**
11	0.2176	0.2860	0.3193	0.1929
12	0.3722	0.2044	**0.5516**	**0.2740**
13	0.2432	0.2748	0.2432	0.2748
14	0.1810	0.1605	0.1810	0.1605
15	**0.1306**	**0.1154**	**0.2459**	**0.1315**
16	**0.2644**	**0.2283**	**0.1502**	**0.2063**
17	0.2534	0.1406	0.2437	0.1563
18	**0.4148**	**0.0682**	**0.3556**	**0.1645**
19	0.4613	0.5178	0.4613	0.5178
20	**0.4511**	**0.1287**	**0.3496**	**0.1324**
21	0.3645	0.2962	**0.5497**	**0.3570**
22	0.3736	0.1636	0.3736	0.1636
23	*0.2433*	*0.1940*	**0.2436**	**0.1585**
24	0.2294	0.1117	0.2294	0.1117
25	0.4001	0.2567	0.4774	0.4144
26	0.3513	0.1510	0.3513	0.1510
27	*0.4904*	*0.3716*	0.2924	0.1522
28	**0.2819**	**0.2120**	**0.2991**	**0.1619**
29	**0.3002**	**0.0932**	**0.4401**	**0.2566**
30	**0.3605**	**0.1906**	**0.2661**	**0.2012**
31	0.4900	0.1952	0.4900	0.1952
32	**0.2239**	**0.0764**	**0.2239**	**0.0764**
33	**0.1989**	**0.0379**	**0.3646**	**0.1734**
34	**0.4339**	**0.2752**	**0.3750**	**0.2895**
35	**0.0800**	**0.0785**	**0.1698**	**0.0942**
36	0.3481	0.2486	0.3877	0.2409
37	0.4241	0.1564	0.4241	0.1564
38	0.3932	0.1273	**0.5993**	**0.2455**

Notes: Higher numbers indicate more compact districts. Bolded cells are majority-minority districts. The Reock score is calculated by dividing the area of the district by the area of the smallest circle that could completely enclose the district. The Polsby-Popper score is roughly a ratio of the area of the district to the length of its perimeter. For reference, a district that is a perfect square has a Reock score of 0.6366 and a Polsby-Popper score of 0.7584.

Table 18: Compactness of CDs Under SB 6 and Demonstration Map 2

	SB 6		Demonstration Map 2	
	Area Dispersion	Perimeter	Area Dispersion	Perimeter
District	(Reock)	(Polsby-Popper)	(Reock)	(Polsby-Popper)
1	0.3428	0.1663	0.3482	0.2280
2	0.3927	0.2315	0.3674	0.1090
3	0.4381	0.3341	0.4458	0.3572
4	0.2172	0.0762	0.2168	0.0780
5	0.2990	0.1494	0.3647	0.1587
6	0.2598	0.1520	0.3160	0.2114
7	**0.2222**	**0.0914**	**0.2222**	**0.0910**
8	0.2904	0.2292	0.4410	0.2966
9	**0.4280**	**0.1617**	**0.3787**	**0.2046**
10	0.3421	0.1871	**0.3166**	**0.2582**
11	0.2176	0.2860	0.3193	0.1929
12	0.3722	0.2044	**0.1215**	**0.0505**
13	0.2432	0.2748	0.2432	0.2748
14	0.1810	0.1605	0.3672	0.2736
15	**0.1306**	**0.1154**	**0.2459**	**0.1315**
16	**0.2644**	**0.2283**	**0.1502**	**0.2063**
17	0.2534	0.1406	0.2438	0.1423
18	**0.4148**	**0.0682**	**0.3838**	**0.0850**
19	0.4613	0.5178	0.4613	0.5179
20	**0.4511**	**0.1287**	**0.3496**	**0.1324**
21	0.3645	0.2962	**0.5497**	**0.3570**
22	0.3736	0.1636	0.4902	0.3338
23	*0.2433*	*0.1940*	**0.2436**	**0.1585**
24	0.2294	0.1117	0.3050	0.1708
25	0.4001	0.2567	0.4143	0.3488
26	0.3513	0.1510	0.3515	0.1570
27	*0.4904*	*0.3716*	0.2924	0.1522
28	**0.2819**	**0.2120**	**0.2991**	**0.1619**
29	**0.3002**	**0.0932**	**0.2280**	**0.0812**
30	**0.3605**	**0.1906**	**0.4145**	**0.1477**
31	0.4900	0.1952	0.4900	0.1952
32	**0.2239**	**0.0764**	**0.3877**	**0.2382**
33	**0.1989**	**0.0379**	**0.2931**	**0.0946**
34	**0.4339**	**0.2752**	**0.3750**	**0.2895**
35	**0.0800**	**0.0785**	**0.1698**	**0.0942**
36	0.3481	0.2486	0.4342	0.2651
37	0.4241	0.1564	0.4241	0.1564
38	0.3932	0.1273	**0.5212**	**0.2120**

Notes: Higher numbers indicate more compact districts. Bolded cells are majority-minority districts. The Reock score is calculated by dividing the area of the district by the area of the smallest circle that could completely enclose the district. The Polsby-Popper score is roughly a ratio of the area of the district to the length of its perimeter. For reference, a district that is a perfect square has a Reock score of 0.6366 and a Polsby-Popper score of 0.7584.

State House District Tables

Table 19: Enacted Map: Total and Citizen Voting Age Populations of HDs

District	Total (Census)	CVAP	White CVAP	Hispanic CVAP	Black CVAP	Asian CVAP
		(ACS 2016-2020)				
Tarrant						
90	202,379	109,964	28.6%	50.1%	18.6%	1.9%
91	186,760	127,841	68.5%	18.2%	6.2%	5.4%
92	188,309	104,325	41.0%	23.3%	27.1%	6.5%
93	195,785	119,128	64.6%	16.8%	10.1%	6.2%
94	185,756	127,481	67.1%	13.6%	12.5%	5.0%
95	203,993	121,492	27.1%	21.5%	47.6%	2.4%
96	188,593	131,719	62.8%	13.2%	18.4%	3.5%
97	189,469	130,377	69.6%	15.7%	10.3%	2.9%
98	184,798	130,116	76.8%	9.9%	5.7%	6.1%
99	194,917	131,347	65.1%	22.5%	9.5%	1.6%
101	189,881	116,391	32.7%	22.4%	32.5%	10.5%
Harris						
128	192,949	116,114	57.1%	29.6%	10.7%	1.4%
129	201,896	130,384	58.1%	22.6%	8.6%	8.9%
142	193,612	112,570	17.7%	34.1%	45.1%	2.0%
143	200,529	100,672	16.7%	63.6%	17.8%	1.4%
144	203,960	107,249	21.4%	66.8%	8.0%	3.2%

Notes: Rows in grey are districts where a majority of the citizen voting age population is non-white.

Table 20: Demonstration Map: Total and Citizen Voting Age Populations of HDs

District	Total (Census)	CVAP	White CVAP	Hispanic CVAP	Black CVAP	Asian CVAP
		(ACS 2016-2020)				
Tarrant						
90	195,242	105,023	35.2%	51.2%	9.5%	2.7%
91	194,487	125,923	67.6%	16.5%	9.1%	4.5%
92	190,747	107,951	41.0%	24.3%	26.1%	6.7%
93	193,288	125,147	63.6%	16.8%	9.5%	7.6%
94	192,012	120,009	33.9%	19.9%	41.3%	3.7%
95	188,168	116,477	39.9%	22.9%	33.8%	2.3%
96	192,814	135,023	67.1%	13.3%	13.7%	3.7%
97	188,671	131,526	68.8%	15.2%	11.8%	2.7%
98	195,244	138,996	79.8%	9.7%	3.5%	5.6%
99	185,274	122,768	71.4%	19.3%	6.5%	1.6%
101	194,693	121,336	34.0%	20.8%	33.4%	10.1%
Harris						
128	203,691	132,672	63.4%	22.2%	7.6%	5.2%
129	203,044	117,556	29.2%	52.0%	10.3%	7.6%
142	193,285	115,861	28.5%	29.2%	39.5%	1.6%
143	196,556	98,724	18.6%	56.4%	22.8%	1.7%
144	196,922	100,001	31.9%	55.5%	10.5%	0.9%

Notes: Rows in grey are districts where a majority of the citizen voting age population is non-white.

Table 21: Enacted Map: General Election Results in HDs

District	Average Vote Share of Minority Preferred Candidate	Number of Elections Minority Preferred Candidate Wins	Number of Elections Minority Preferred Candidate Loses
Tarrant			
90	69%	34	1
91	35%	0	35
92	58%	34	1
93	38%	0	35
94	39%	0	35
95	76%	34	1
96	40%	0	35
97	39%	0	35
98	31%	0	35
99	37%	0	35
101	66%	34	1
Harris			
128	29%	0	35
129	39%	0	35
142	75%	34	1
143	69%	34	1
144	58%	34	1

Notes: VTD election data from the Texas Legislative Council. Elections used in the analysis are all elections for US President, US Senate, US House, Governor, Lt. Governor, Attorney General, State Supreme Court, Court of Criminal Appeals, Agricultural Commissioner, Comptroller, Land Commissioner, and Railroad Commissioner, for 2016, 2018, and 2020.

Table 22: Demonstration Map: General Election Results in HDs

District	Average Vote Share of Minority Preferred Candidate	Number of Elections Minority Preferred Candidate Wins	Number of Elections Minority Preferred Candidate Loses
Tarrant			
90	64%	34	1
91	37%	0	35
92	58%	34	1
93	38%	0	35
94	66%	34	1
95	60%	34	1
96	38%	0	35
97	41%	0	35
98	29%	0	35
99	32%	0	35
101	63%	34	1
Harris			
128	32%	0	35
129	53%	33	2
142	63%	34	1
143	66%	34	1
144	52%	33	2

Notes: VTD election data from the Texas Legislative Council. Elections used in the analysis are all elections for US President, US Senate, US House, Governor, Lt. Governor, Attorney General, State Supreme Court, Court of Criminal Appeals, Agricultural Commissioner, Comptroller, Land Commissioner, and Railroad Commissioner, for 2016, 2018, and 2020.

Table 23: Enacted Map: General Election Vote Preference By Racial Group - EI Estimates - State House Districts

	Percent Democratic						Polarization	
District	White	[min,max]	Black	[min,max]	Hispanic	[min,max]	B-W	H-W
Tarrant								
90	52	[37, 59]	86	[80, 92]	86	[80, 90]	34	34
91	27	[20, 33]	56	[41, 67]	67	[59, 75]	29	40
92	48	[38, 58]	83	[78, 87]	76	[66, 86]	34	28
93	24	[13, 35]	51	[41, 62]	69	[51, 76]	27	45
94	33	[24, 40]	64	[51, 76]	66	[47, 80]	31	34
95	44	[32, 54]	94	[90, 95]	81	[76, 86]	49	37
96	24	[18, 30]	79	[72, 87]	64	[54, 72]	55	40
97	32	[23, 41]	71	[63, 86]	59	[48, 73]	38	27
98	23	[13, 33]	61	[47, 75]	65	[56, 77]	38	42
99	27	[17, 35]	81	[78, 88]	67	[55, 75]	54	39
101	61	[45, 78]	81	[73, 90]	55	[41, 69]	20	-7
Harris								
128	11	[5, 18]	74	[43, 82]	62	[45, 74]	62	51
129	28	[17, 37]	66	[57, 77]	56	[45, 69]	37	27
142	30	[13, 44]	93	[91, 96]	80	[72, 87]	63	50
143	29	[21, 56]	84	[80, 93]	79	[70, 88]	55	50
144	36	[28, 47]	64	[52, 72]	77	[66, 87]	29	42

Notes: VTD election data from the Texas Legislative Council. Elections used in the analysis are all elections for US President, US Senate, US House, Governor, Lt. Governor, Attorney General, State Supreme Court, Court of Criminal Appeals, Agricultural Commissioner, Comptroller, Land Commissioner, and Railroad Commissioner, for 2016, 2018, and 2020. Ecological Inference (EI) results estimated using the EI package in R. The "[min,max]" columns report the minimum and maximum estimated percent of each racial group's Democratic support across all elections analyzed.

Table 24: Demonstration Map: General Election Vote Preference By Racial Group - EI Estimates - State House Districts

	Percent Democratic						Polarization	
District	White	[min,max]	Black	[min,max]	Hispanic	[min,max]	B-W	H-W
Tarrant								
90	36	[30, 40]	77	[74, 80]	85	[80, 88]	41	49
91	27	[25, 30]	64	[60, 67]	63	[53, 66]	37	36
92	47	[45, 51]	80	[76, 86]	69	[65, 76]	32	22
93	15	[13, 17]	52	[40, 63]	66	[60, 75]	37	51
94	31	[28, 37]	95	[95, 96]	87	[84, 90]	65	56
95	27	[22, 31]	91	[89, 93]	82	[79, 85]	64	55
96	20	[18, 26]	75	[64, 81]	70	[65, 76]	55	50
97	29	[24, 37]	81	[75, 86]	73	[67, 76]	52	43
98	15	[12, 21]	53	[43, 63]	71	[60, 78]	38	56
99	15	[12, 18]	55	[47, 63]	68	[65, 73]	40	53
101	39	[29, 45]	85	[76, 89]	70	[60, 80]	46	31
Harris								
128	20	[17, 25]	67	[57, 72]	50	[39, 56]	47	30
129	27	[20, 35]	68	[63, 73]	78	[71, 83]	41	50
142	12	[8, 16]	95	[94, 96]	85	[82, 88]	83	73
143	26	[17, 63]	88	[87, 91]	83	[76, 89]	62	57
144	19	[15, 42]	77	[70, 86]	85	[83, 86]	57	66

Notes: VTD election data from the Texas Legislative Council. Elections used in the analysis are all elections for US President, US Senate, US House, Governor, Lt. Governor, Attorney General, State Supreme Court, Court of Criminal Appeals, Agricultural Commissioner, Comptroller, Land Commissioner, and Railroad Commissioner, for 2016, 2018, and 2020. Ecological Inference (EI) results estimated using the EI package in R. The "[min,max]" columns report the minimum and maximum estimated percent of each racial group's Democratic support across all elections analyzed.

Table 25: Compactness of Enacted and Demonstration State House Districts

	Enacted State HDs		Demonstration State HDs	
	Area Dispersion	Perimeter	Area Dispersion	Perimeter
District	(Reock)	(Polsby-Popper)	(Reock)	(Polsby-Popper)
Tarrant				
90	**0.3069**	**0.0710**	**0.4453**	**0.2099**
91	0.5006	0.4573	0.3464	0.3112
92	**0.2876**	**0.0975**	**0.4226**	**0.3500**
93	0.4118	0.3031	0.5608	0.4835
94	0.3689	0.0763	**0.3536**	**0.2698**
95	**0.2729**	**0.0913**	**0.4548**	**0.3545**
96	0.2976	0.1785	0.4122	0.3158
97	0.4964	0.2618	0.4786	0.4422
98	0.4962	0.4511	0.5489	0.4758
99	0.4139	0.2465	0.6068	0.4971
101	**0.3435**	**0.3397**	**0.5012**	**0.4163**
Average	0.3815	0.2340	0.4665	0.3751
Harris				
128	**0.2940**	**0.1184**	0.4929	0.2860
129	0.3946	0.1589	**0.3561**	**0.1933**
142	**0.2812**	**0.1573**	**0.2727**	**0.1581**
143	**0.1736**	**0.1359**	**0.2666**	**0.2662**
144	**0.3326**	**0.1957**	**0.2776**	**0.2052**
Average	0.2952	0.1532	0.3332	0.2218
Statewide Average	0.3460	0.2540	0.3535	0.2667

Notes: Higher numbers indicate more compact districts. Bolded cells are majority-minority districts. The "Average" row calculates the average compactness scores for all of the districts above it. The Reock score is calculated by dividing the area of the district by the area of the smallest circle that could completely enclose the district. The Polsby-Popper score is roughly a ratio of the area of the district to the length of its perimeter. For reference, a district that is a perfect square has a Reock score of 0.6366 and a Polsby-Popper score of 0.7584.

AI Appendix A

AI.I Methodology

1. The population data I obtained from the Texas Legislative Council must be linked to the electoral data because the election data are reported in a geography that does not perfectly match the geographic level at which the CVAP data are reported. CVAP data are reported at the Census block group level. A Census block group is a cluster of neighboring Census blocks, and typically has a couple of thousand people. The election data are reported at the precinct, or Voting Tabulation District (VTD), level. Precincts are defined by local election offices for the purpose of administering elections; VTDs are a census definition of area that are equivalent to or linked to precincts. I aggregate blocks and, for CVAP, block groups to the VTD level. Where block groups are split across precincts, I follow best practices and allocate the CVAP counts in block groups according to the share of the VAP that is in each precinct. I do this in three steps: first, we calculate the share of the block group's total VAP that comes from each of the blocks within it. Second, we allocate the CVAP population of the block group to blocks by multiplying the block's share of the block group VAP by the estimated number of CVAP for each racial group in the block group. Last, we aggregate up the CVAP populations to the VTD level. In scholarship on elections and demography, this is the most common and widely accepted practice for linking precincts to Census areas.[10] It does assume an even

[10]Amos, Brian, Michael P. McDonald, and Russell Watkins. "When Boundaries Collide: Constructing a National Database of Demographic and Voting Statistics." *Public Opinion Quarterly* 81 (2017): 385-400. Ansolabehere, Stephen, Persily Nathaniel, and Stewart Charles III. "Regional Differences in Racial Polarization in the 2012 Presidential Election: Implications for Constitution-

distribution of CVAP population across blocks within a block group.[11]

2. In evaluating cohesion, I perform ecological regression analyses and ecological inference analyses for all estimates of racial cohesion and polarization in general elections. Ecological regression is a long-accepted methodology in the political science field for measuring racial voting patterns using aggregate election data and census data. It is the standard methodology used to measure racial voting patterns using aggregate data. Ecological inference is a newer methodology and is also used in scholarship on the measurement of group voting patterns. The ecological inference estimates are much less precise than the ecological regression estimates. The Tables 13, 14, and 15 present the average estimates and the ranges of estimates from ecological inference for the Enacted and Demonstration congressional maps, and Tables 23 and 24 present the average estimates and the ranges of estimates from ecological inference for certain Tarrant and Harris county districts in the Enacted and Demonstration state house maps. In the appendix, Tables A6-A10 present the equivalent analysis using ecological regression and presents the average estimates and the ranges of estimates from ecological regression for the Enacted and Demonstration congressional and state house districts. The ranges of the ecological inference results are

ality of Section 5 of the Voting Rights Act." *Harvard Law Review* 126 (2013): 205-220. Eitan Hersh and Clayton Nall, "The Primacy of Race in the Geography of Income-Based Voting: New Evidence from Public Voting Records." *American Journal of Political Science* 60 (2016): 289-303. Bernard Grofman, Lisa Handley, and David Lublin, "Drawing Effective Minority Districts: A Conceptual Framework and Some Empirical Evidence." *North Carolina Law Review* 79 (2000-2001): 1383-430.

[11] An alternative approach is to include the entirety of a block group in a VTD if more than 50 percent of its area is in the VTD, and to exclude block groups if less than 50 percent of an area is included. I prefer the approach I have employed because it ensures that all block groups are accounted for. The two approaches differ only slightly, and which method is used has no substantive effect on conclusions drawn.

quite large compared to the confidence intervals for ecological regression.

Table A1: Enacted Map: Total and Citizen Voting Age Populations of CDs - 2015-2019 ACS

District	Total (Census)	CVAP	White CVAP	Hispanic CVAP (ACS 2015-2019)	Black CVAP	Asian CVAP
1	766,987	545,834	70.1%	8.4%	19.6%	0.8%
2	766,987	467,366	65.0%	19.3%	11.3%	3.0%
3	766,987	457,208	70.8%	9.8%	9.7%	8.2%
4	766,987	486,639	74.2%	8.9%	9.5%	5.2%
5	766,987	476,501	63.7%	16.5%	14.6%	3.8%
6	766,987	462,115	60.0%	20.7%	15.1%	2.7%
7	766,987	435,219	41.2%	19.8%	20.0%	17.5%
8	766,987	446,637	60.2%	20.7%	13.1%	4.6%
9	766,987	440,285	19.6%	24.4%	46.7%	8.6%
10	766,987	498,131	67.7%	16.2%	11.6%	3.0%
11	766,987	506,171	53.7%	32.0%	11.1%	1.4%
12	766,987	493,806	68.2%	16.6%	10.7%	2.9%
13	766,987	531,681	70.4%	19.6%	6.7%	1.5%
14	766,987	523,340	62.4%	17.2%	17.0%	2.3%
15	766,987	413,370	22.7%	74.1%	1.6%	1.1%
16	766,986	454,920	15.9%	78.4%	3.8%	1.0%
17	766,987	533,187	63.9%	16.9%	16.4%	1.6%
18	766,987	445,657	24.9%	27.9%	41.5%	4.8%
19	766,987	532,275	59.0%	32.2%	6.6%	0.9%
20	766,987	516,565	22.9%	67.8%	6.1%	2.0%
21	766,987	540,406	67.5%	25.7%	3.8%	1.7%
22	766,987	443,283	54.6%	23.3%	11.3%	9.5%
23	766,987	463,769	34.7%	58.1%	4.3%	1.6%
24	766,987	521,692	74.0%	11.6%	6.6%	5.8%
25	766,987	529,507	70.1%	14.3%	11.7%	2.5%
26	766,987	473,574	71.1%	12.4%	8.8%	5.9%
27	766,987	538,980	44.4%	48.7%	4.9%	1.1%
28	766,987	452,043	22.8%	69.4%	6.1%	0.8%
29	766,987	380,606	15.0%	62.4%	19.4%	2.7%
30	766,987	474,915	25.9%	20.5%	49.7%	2.9%
31	766,987	488,604	69.3%	17.7%	8.6%	2.3%
32	766,987	448,456	48.5%	20.2%	23.0%	6.6%
33	766,987	373,602	25.8%	41.4%	27.3%	4.3%
34	766,987	411,504	12.1%	86.6%	0.6%	0.5%
35	766,987	458,438	34.0%	48.1%	14.4%	2.1%
36	766,987	507,725	61.3%	20.8%	13.6%	3.1%
37	766,987	529,626	65.0%	20.9%	6.5%	5.7%
38	766,987	477,778	62.7%	17.9%	10.0%	8.1%

Notes: Rows in grey are districts where a majority of the citizen voting age population is non-white. CVAP tabulations come directly from the Texas Legislative Council ACS special tabulation report for enacted districts (red116 of Plan C2193).

Table A2: Demonstration Map 1: Total and Citizen Voting Age Populations of CDs - 2015-2019 ACS

District	Total (Census)	CVAP	White CVAP	Hispanic CVAP (ACS 2015-2019)	Black CVAP	Asian CVAP
1	766,987	545,834	70.1%	8.4%	19.6%	0.8%
2	766,987	478,044	65.1%	16.1%	10.4%	7.0%
3	766,987	457,208	70.8%	9.8%	9.7%	8.2%
4	766,987	486,639	74.2%	8.9%	9.5%	5.2%
5	766,987	476,501	63.7%	16.5%	14.6%	3.8%
6	766,987	517,724	71.3%	14.9%	11.1%	1.3%
7	766,987	435,219	41.2%	19.8%	20.0%	17.5%
8	766,987	448,592	60.2%	20.9%	13.0%	4.6%
9	766,987	447,171	20.3%	22.5%	47.8%	8.7%
10	766,987	464,309	37.9%	50.5%	9.1%	1.4%
11	766,987	517,240	67.4%	19.8%	9.1%	1.8%
12	766,987	406,906	37.3%	36.0%	19.6%	5.7%
13	766,987	531,681	70.4%	19.6%	6.7%	1.5%
14	766,987	523,340	62.4%	17.2%	17.0%	2.3%
15	766,987	436,608	20.7%	76.0%	2.1%	0.7%
16	766,987	459,500	28.6%	64.0%	5.0%	1.2%
17	766,987	528,055	63.0%	18.1%	16.0%	1.6%
18	766,987	444,551	25.0%	28.7%	41.7%	3.6%
19	766,987	532,275	59.0%	32.2%	6.6%	0.9%
20	766,987	531,084	38.4%	50.3%	8.1%	2.1%
21	766,987	505,185	37.5%	51.8%	6.8%	2.4%
22	766,987	443,283	54.6%	23.3%	11.3%	9.5%
23	766,987	464,731	24.4%	71.7%	2.6%	0.4%
24	766,987	521,692	74.0%	11.6%	6.6%	5.8%
25	766,987	518,618	78.2%	12.9%	5.6%	1.7%
26	766,987	473,574	71.1%	12.4%	8.8%	5.9%
27	766,987	511,926	68.0%	15.9%	12.1%	2.7%
28	766,986	402,388	18.9%	77.9%	2.0%	0.8%
29	766,987	421,054	40.2%	36.1%	16.8%	5.9%
30	766,987	459,889	24.7%	19.0%	51.5%	3.7%
31	766,987	488,604	69.3%	17.7%	8.6%	2.3%
32	766,987	448,456	48.5%	20.2%	23.0%	6.6%
33	766,987	431,333	38.2%	29.6%	27.6%	3.3%
34	766,987	482,633	24.2%	72.2%	1.9%	1.1%
35	766,987	483,298	37.5%	50.3%	9.3%	1.5%
36	766,987	497,941	70.3%	14.7%	12.1%	1.7%
37	766,987	529,626	65.0%	20.9%	6.5%	5.7%
38	766,987	428,701	31.6%	51.0%	12.7%	3.9%

Notes: Rows in grey are districts where a majority of the citizen voting age population is non-white. CVAP tabulations for districts 1, 3, 4, 5, 7, 8, 13, 14, 19, 22, 24, 26, 31, 32, and 37 come from the special tabulation report (r116) of the legislature's SB6 Plan (Plan C2193).

Table A3: Demonstration Map 2: Total and Citizen Voting Age Populations of CDs - 2015-2019 ACS

District	Total (Census)	CVAP	White CVAP	Hispanic CVAP (ACS 2015-2019)	Black CVAP	Asian CVAP
1	766,987	544,667	70.0%	8.4%	19.7%	0.7%
2	766,987	474,040	57.1%	20.0%	12.7%	8.8%
3	766,987	458,753	71.1%	9.8%	9.7%	7.8%
4	766,987	483,228	73.9%	8.8%	9.5%	5.6%
5	766,987	512,291	70.6%	11.8%	12.2%	3.8%
6	766,987	520,866	74.0%	15.1%	7.7%	1.6%
7	766,987	432,148	40.9%	19.7%	20.3%	17.6%
8	766,987	460,962	70.2%	15.3%	8.3%	4.8%
9	766,987	440,454	26.1%	20.9%	40.9%	11.4%
10	766,987	464,309	37.9%	50.5%	9.1%	1.4%
11	766,987	517,240	67.4%	19.8%	9.1%	1.8%
12	766,987	363,805	27.1%	50.6%	18.6%	2.7%
13	766,987	531,681	70.4%	19.6%	6.7%	1.5%
14	766,987	513,844	59.7%	16.7%	19.2%	3.2%
15	766,987	436,608	20.7%	76.0%	2.1%	0.7%
16	766,987	459,500	28.6%	64.0%	5.0%	1.2%
17	766,987	526,625	62.9%	18.2%	16.0%	1.6%
18	766,987	457,561	28.2%	24.9%	42.9%	3.0%
19	766,987	532,275	59.0%	32.2%	6.6%	0.9%
20	766,987	531,084	38.4%	50.3%	8.1%	2.1%
21	766,987	505,185	37.5%	51.8%	6.8%	2.4%
22	766,987	467,384	55.0%	24.9%	13.0%	6.0%
23	766,987	464,731	24.4%	71.7%	2.6%	0.4%
24	766,987	483,198	65.9%	12.7%	11.2%	8.0%
25	766,987	503,293	75.1%	14.7%	5.6%	2.8%
26	766,987	475,441	71.2%	12.4%	8.8%	5.9%
27	766,987	511,926	68.0%	15.9%	12.1%	2.7%
28	766,986	402,388	18.9%	77.9%	2.0%	0.8%
29	766,987	385,904	21.7%	49.9%	22.0%	5.7%
30	766,987	477,659	27.2%	19.2%	50.2%	2.4%
31	766,987	488,604	69.3%	17.7%	8.6%	2.3%
32	766,987	453,766	54.2%	20.0%	19.1%	5.2%
33	766,987	468,841	41.6%	20.1%	32.0%	4.8%
34	766,987	482,633	24.2%	72.2%	1.9%	1.1%
35	766,987	483,298	37.5%	50.3%	9.3%	1.5%
36	766,987	519,543	77.7%	11.4%	8.7%	1.0%
37	766,987	529,626	65.0%	20.9%	6.5%	5.7%
38	766,987	416,055	28.7%	50.8%	16.0%	3.6%

Notes: Rows in grey are districts where a majority of the citizen voting age population is non-white. CVAP tabulations for districts 2, 7, 9, 12, 18, 24, 29, 30, 32, 33, and 38 come from the special tabulation report (r116) of Plan C2163. District 12 in demonstration map 2 is equivalent to district 37 in Plan C2163. CVAP tabulations for districts 1, 3, 4, 13, 19, 26, 31, and 37 come from the special tabulation report (r116) of the legislature's SB6 Plan (Plan C2193).

Table A4: Enacted Map: Total and Citizen Voting Age Populations of HDs - 2015-2019 ACS

District	Total (Census)	CVAP	White CVAP	Hispanic CVAP (ACS 2015-2019)	Black CVAP	Asian CVAP
Tarrant						
90	202,379	104,541	30.2%	49.4%	18.2%	1.4%
91	186,760	127,809	68.5%	17.8%	6.5%	5.3%
92	188,309	102,994	42.1%	23.1%	26.8%	5.9%
93	195,785	111,980	63.5%	16.4%	11.6%	6.1%
94	185,756	127,602	69.9%	12.2%	11.7%	4.5%
95	203,993	116,650	27.3%	19.6%	49.5%	2.4%
96	188,593	128,588	64.0%	14.1%	16.2%	3.9%
97	189,469	132,667	71.4%	13.7%	11.1%	2.4%
98	184,798	128,027	79.3%	9.2%	3.7%	6.1%
99	194,917	128,183	67.0%	20.7%	9.0%	1.9%
101	189,881	114,075	32.5%	22.7%	32.8%	10.4%
Harris						
128	192,949	117,343	58.0%	28.7%	10.8%	1.6%
129	201,896	126,653	59.5%	22.3%	8.2%	8.2%
142	193,612	109,121	19.7%	31.1%	46.7%	1.6%
143	200,529	99,010	18.7%	59.7%	19.9%	1.0%
144	203,960	109,096	23.0%	64.4%	9.1%	2.9%

Notes: Rows in grey are districts where a majority of the citizen voting age population is non-white.

Table A5: Demonstration Map: Total and Citizen Voting Age Populations of HDs - 2015-2019 ACS

District	Total (Census)	CVAP	White CVAP	Hispanic CVAP (ACS 2015-2019)	Black CVAP	Asian CVAP
Tarrant						
90	195,242	99,634	35.4%	51.9%	9.7%	1.6%
91	194,487	126,010	69.0%	15.9%	8.6%	4.2%
92	190,747	105,090	43.5%	24.7%	23.4%	6.4%
93	193,288	122,197	64.7%	15.7%	10.0%	7.2%
94	192,012	115,957	35.4%	17.4%	42.2%	3.8%
95	188,168	111,715	42.0%	21.5%	32.9%	2.6%
96	192,814	135,658	67.8%	12.8%	13.5%	4.1%
97	188,671	132,613	70.5%	14.0%	12.0%	2.0%
98	195,244	137,347	80.8%	8.8%	3.2%	5.6%
99	185,274	117,801	71.4%	18.0%	7.0%	2.1%
101	194,693	119,093	34.1%	21.0%	33.6%	9.8%
Harris						
128	203,691	130,884	65.3%	22.2%	5.9%	5.1%
129	203,044	117,352	30.0%	50.8%	11.5%	6.6%
142	193,285	113,411	30.2%	27.0%	40.4%	1.4%
143	196,556	99,013	21.7%	51.9%	24.7%	1.3%
144	196,922	99,063	32.7%	53.1%	12.4%	0.8%

Notes: Rows in grey are districts where a majority of the citizen voting age population is non-white.

Table A6: Enacted Map: General Election Vote Preference By Racial Group - ER Estimates

	Percent Democratic						Polarization	
District	White	CI	Black	CI	Hispanic	CI	B-W	H-W
7	50	[49, 51]	97	[95, 99]	96	[93, 99]	47	46
9	30	[29, 31]	100	[99, 100]	78	[75, 80]	70	48
10	19	[17, 21]	87	[84, 90]	100	[96, 100]	68	81
12	16	[14, 17]	100	[98, 100]	100	[97, 100]	84	84
15	0	[0, 1]	.	[., .]	74	[74, 75]	.	74
16	17	[15, 18]	.	[., .]	81	[80, 83]	.	65
18	38	[37, 39]	100	[99, 100]	47	[45, 50]	62	9
20	28	[26, 29]	.	[., .]	81	[80, 82]	.	53
21	19	[17, 20]	100	[93, 100]	85	[83, 86]	81	66
23	11	[10, 12]	.	[., .]	70	[69, 71]	.	59
27	4	[4, 5]	.	[., .]	76	[76, 77]	.	72
28	7	[6, 8]	.	[., .]	76	[75, 77]	.	69
29	34	[32, 36]	89	[87, 90]	72	[70, 73]	54	37
30	42	[41, 43]	99	[99, 100]	60	[58, 63]	58	19
32	42	[41, 43]	100	[99, 100]	100	[98, 100]	58	58
33	39	[38, 40]	93	[92, 94]	82	[81, 83]	54	43
34	9	[7, 10]	.	[., .]	73	[72, 74]	.	64
35	49	[47, 51]	94	[91, 97]	80	[78, 82]	45	31
38	18	[16, 19]	100	[96, 100]	94	[91, 97]	82	76

Notes: VTD election data from the Texas Legislative Council. Elections used in the analysis are all elections for US President, US Senate, US House, Governor, Lt. Governor, Attorney General, State Supreme Court, Court of Criminal Appeals, Agricultural Commissioner, Comptroller, Land Commissioner, and Railroad Commissioner, for 2016, 2018, and 2020. “CI" stands for 95% confidence intervals. Missing values indicate insufficient data for estimates.

Table A7: Demonstration Map 1: General Election Vote Preference By Racial Group - ER Estimates

	Percent Democratic						Polarization	
District	White	CI	Black	CI	Hispanic	CI	B-W	H-W
7	50	[49, 51]	97	[95, 99]	96	[93, 99]	47	46
9	32	[31, 33]	100	[99, 100]	76	[73, 79]	68	44
10	7	[4, 9]	100	[96, 100]	75	[73, 78]	93	69
12	44	[43, 45]	97	[95, 99]	83	[81, 84]	53	38
15	1	[0, 1]	.	[., .]	74	[73, 75]	.	73
16	0	[0, 1]	.	[., .]	88	[86, 89]	.	88
18	23	[22, 24]	100	[99, 100]	75	[72, 78]	77	52
20	17	[16, 17]	.	[., .]	89	[88, 90]	.	73
21	11	[10, 12]	.	[., .]	86	[84, 87]	.	74
23	0	[0, 1]	.	[., .]	79	[79, 80]	.	79
27	16	[14, 17]	82	[79, 85]	84	[80, 87]	67	68
28	0	[0, 1]	.	[., .]	76	[75, 76]	.	76
29	23	[22, 24]	100	[98, 100]	88	[86, 90]	77	65
30	16	[15, 17]	100	[99, 100]	71	[68, 75]	84	55
32	42	[41, 43]	100	[99, 100]	100	[98, 100]	58	58
33	21	[20, 22]	100	[99, 100]	80	[78, 82]	79	59
34	9	[9, 10]	.	[., .]	73	[73, 74]	.	64
35	18	[17, 19]	63	[59, 67]	86	[85, 87]	45	69
38	4	[3, 5]	100	[96, 100]	83	[82, 85]	96	80

Notes: VTD election data from the Texas Legislative Council. Elections used in the analysis are all elections for US President, US Senate, US House, Governor, Lt. Governor, Attorney General, State Supreme Court, Court of Criminal Appeals, Agricultural Commissioner, Comptroller, Land Commissioner, and Railroad Commissioner, for 2016, 2018, and 2020. “CI" stands for 95% confidence intervals. Missing values indicate insufficient data for estimates.

Table A8: Demonstration Map 2: General Election Vote Preference By Racial Group - ER Estimates

	Percent Democratic						Polarization	
District	White	CI	Black	CI	Hispanic	CI	B-W	H-W
7	50	[49, 51]	97	[95, 99]	98	[95, 100]	47	48
9	16	[15, 17]	100	[99, 100]	97	[93, 100]	84	81
10	7	[4, 9]	100	[96, 100]	75	[73, 78]	93	69
12	25	[24, 26]	100	[98, 100]	88	[87, 89]	75	63
15	1	[0, 1]	.	[., .]	74	[73, 75]	.	73
16	0	[0, 1]	.	[., .]	88	[86, 89]	.	88
18	31	[30, 32]	100	[99, 100]	58	[55, 62]	69	28
20	17	[16, 17]	.	[., .]	89	[88, 90]	.	73
21	11	[10, 12]	.	[., .]	86	[84, 87]	.	74
23	0	[0, 1]	.	[., .]	79	[79, 80]	.	79
27	16	[14, 17]	82	[79, 85]	84	[80, 87]	67	68
28	0	[0, 1]	.	[., .]	76	[75, 76]	.	76
29	17	[15, 18]	99	[97, 100]	77	[76, 79]	82	61
30	40	[39, 41]	100	[99, 100]	50	[47, 53]	60	10
32	40	[39, 41]	100	[98, 100]	95	[93, 98]	60	56
33	25	[25, 26]	100	[99, 100]	100	[96, 100]	75	75
34	9	[9, 10]	.	[., .]	73	[73, 74]	.	64
35	18	[17, 19]	.	[., .]	86	[85, 87]	.	69
38	4	[2, 5]	100	[97, 100]	78	[76, 80]	96	74

Notes: VTD election data from the Texas Legislative Council. Elections used in the analysis are all elections for US President, US Senate, US House, Governor, Lt. Governor, Attorney General, State Supreme Court, Court of Criminal Appeals, Agricultural Commissioner, Comptroller, Land Commissioner, and Railroad Commissioner, for 2016, 2018, and 2020. “CI" stands for 95% confidence intervals. Missing values indicate insufficient data for estimates.

Table A9: Enacted Map: General Election Vote Preference By Racial Group - ER Estimates - State House Districts

	Percent Democratic						Polarization	
District	White	CI	Black	CI	Hispanic	CI	B-W	H-W
Tarrant								
90	36	[35, 38]	81	[79, 84]	85	[84, 87]	45	49
91	24	[21, 26]	95	[87, 100]	78	[74, 81]	71	54
92	25	[23, 26]	100	[97, 100]	100	[95, 100]	75	75
93	22	[19, 25]	51	[43, 58]	82	[77, 86]	29	60
94	24	[22, 26]	100	[97, 100]	100	[94, 100]	76	76
95	26	[24, 27]	100	[99, 100]	79	[73, 85]	74	53
96	16	[14, 17]	100	[97, 100]	100	[91, 100]	84	84
97	26	[24, 29]	100	[97, 100]	79	[72, 86]	74	52
98	19	[16, 22]	100	[94, 100]	100	[94, 100]	81	81
99	19	[17, 22]	100	[97, 100]	74	[70, 79]	81	55
101	46	[43, 48]	87	[85, 89]	57	[53, 61]	41	11
Harris								
128	2	[0, 5]	100	[96, 100]	78	[72, 84]	98	76
129	27	[25, 30]	100	[95, 100]	57	[54, 61]	73	30
142	3	[0, 5]	100	[98, 100]	64	[58, 69]	97	61
143	6	[3, 8]	84	[81, 87]	74	[72, 77]	79	69
144	11	[7, 14]	58	[52, 64]	69	[67, 72]	47	59

Notes: VTD election data from the Texas Legislative Council. Elections used in the analysis are all elections for US President, US Senate, US House, Governor, Lt. Governor, Attorney General, State Supreme Court, Court of Criminal Appeals, Agricultural Commissioner, Comptroller, Land Commissioner, and Railroad Commissioner, for 2016, 2018, and 2020. "CI" stands for 95% confidence intervals. Missing values indicate insufficient data for estimates.

Table A10: Demonstration Map: General Election Vote Preference By Racial Group - ER Estimates - State House Districts

	Percent Democratic						Polarization	
District	White	CI	Black	CI	Hispanic	CI	B-W	H-W
Tarrant								
90	33	[31, 34]	88	[84, 93]	84	[83, 86]	56	52
91	25	[23, 27]	100	[96, 100]	68	[64, 72]	75	43
92	29	[27, 31]	100	[97, 100]	86	[82, 90]	71	57
93	29	[26, 32]	57	[52, 62]	65	[61, 70]	28	37
94	22	[21, 23]	100	[99, 100]	100	[92, 100]	78	78
95	17	[16, 19]	100	[98, 100]	100	[91, 100]	83	83
96	18	[16, 21]	100	[95, 100]	100	[93, 100]	82	82
97	25	[23, 28]	100	[97, 100]	100	[93, 100]	75	75
98	21	[18, 24]	100	[91, 100]	88	[83, 93]	79	68
99	18	[15, 20]	100	[91, 100]	82	[78, 86]	82	64
101	20	[18, 22]	100	[96, 100]	100	[92, 100]	80	80
Harris								
128	24	[21, 28]	100	[94, 100]	22	[18, 26]	76	-2
129	19	[17, 22]	60	[52, 68]	72	[69, 74]	41	52
142	0	[0, 1]	100	[98, 100]	100	[90, 100]	100	100
143	0	[0, 2]	99	[95, 100]	75	[70, 79]	99	75
144	0	[0, 2]	67	[61, 74]	76	[73, 79]	67	76

Notes: VTD election data from the Texas Legislative Council. Elections used in the analysis are all elections for US President, US Senate, US House, Governor, Lt. Governor, Attorney General, State Supreme Court, Court of Criminal Appeals, Agricultural Commissioner, Comptroller, Land Commissioner, and Railroad Commissioner, for 2016, 2018, and 2020. "CI" stands for 95% confidence intervals. Missing values indicate insufficient data for estimates.

Table A11: Democratic Primary Group Agreement - EI Results - Summary Table

District	N Cases	Single Preference			Both Groups	
		Black	Hispanic	Both	Coalesce	Disagree
DM1 CD12	21	17 (81.0%)	18 (85.7%)	16 (76.2%)	15 (93.8%)	1 (6.2%)
DM1 CD29	21	16 (76.2%)	17 (81.0%)	15 (71.4%)	13 (86.7%)	2 (13.3%)
DM1 CD33	21	18 (85.7%)	18 (85.7%)	17 (81.0%)	14 (82.4%)	3 (17.6%)
DM2 CD29	21	17 (81.0%)	18 (85.7%)	15 (71.4%)	11 (73.3%)	4 (26.7%)
DM2 CD33	21	17 (81.0%)	15 (71.4%)	15 (71.4%)	14 (93.3%)	1 (6.7%)
HD94	21	18 (85.7%)	15 (71.4%)	15 (71.4%)	12 (80.0%)	3 (20.0%)

Notes: VTD election data from the Texas Legislative Council. Elections used in the analysis were Democratic primary and Democratic primary runoff elections for US President, US Senate, Governor, Lt. Governor, State Supreme Court, Court of Criminal Appeals, Comptroller, Land Commissioner, and Railroad Commissioner, for 2016, 2018, and 2020.

AI.II Democratic Primaries

Table A12: Primary Analysis - EI Estimates - HD94

Year	Election	Candidate	Estimated Percent Support			Estimated Turnout Rate		
			White	Black	Hispanic	White	Black	Hispanic
2016	President	Other	1.4	0.5	2.2	6.5	17.8	12.6
2016	President	Clinton	60.5	90.4	58.6	6.5	17.8	12.6
2016	President	Sanders	38.2	9.2	39.2	6.5	17.8	12.6
2016	RR Comm 1	Garrett	26.1	17.5	30.4	4.4	12.8	15.1
2016	RR Comm 1	Yarbrough	33.1	42.4	30.2	4.4	12.8	15.1
2016	RR Comm 1	Burnam	40.8	40.0	39.5	4.4	12.8	15.1
2016	RR Comm 1 Runoff	Yarbrough	60.4	71.6	64.9	0.7	1.2	2.2
2016	RR Comm 1 Runoff	Garrett	39.6	28.4	35.1	0.7	1.2	2.2
2018	Comptroller	Chevalier	56.0	29.3	46.6	4.3	6.2	10.2
2018	Comptroller	Mahoney	44.0	70.7	53.4	4.3	6.2	10.2
2018	Governor	Davis	8.7	20.4	18.9	5.8	8.0	7.9
2018	Governor	Valdez	51.0	53.9	38.8	5.8	8.0	7.9
2018	Governor	Ocegueda	2.3	2.1	4.5	5.8	8.0	7.9
2018	Governor	Yarbrough	4.3	4.9	9.4	5.8	8.0	7.9
2018	Governor	White	25.2	13.2	15.8	5.8	8.0	7.9
2018	Governor	Other	8.5	5.5	12.5	5.8	8.0	7.9
2018	Governor Runoff	Valdez	53.7	64.1	71.0	1.9	1.9	4.8
2018	Governor Runoff	White	46.3	35.9	29.0	1.9	1.9	4.8
2018	Land Comm	Morgan	29.2	46.4	45.4	4.8	6.0	9.5
2018	Land Comm	Suazo	70.8	53.6	54.6	4.8	6.0	9.5
2018	Lt. Governor	Cooper	46.7	55.9	42.1	4.6	7.2	8.0
2018	Lt. Governor	Collier	53.3	44.1	57.9	4.6	7.2	8.0
2018	RR Comm 1	Spellmon	41.9	66.6	43.0	4.1	6.8	8.2
2018	RR Comm 1	McAllen	58.1	33.4	57.0	4.1	6.8	8.2
2018	U.S. Sen	Kimbrough	12.5	38.7	26.5	5.8	6.1	9.5
2018	U.S. Sen	Hernandez	17.7	25.7	32.3	5.8	6.1	9.5
2018	U.S. Sen	ORourke	69.8	35.6	41.3	5.8	6.1	9.5
2020	CCA 3	Wood	13.7	21.7	23.4	10.2	11.1	9.7
2020	CCA 3	DavisFrizell	78.6	65.8	57.8	10.2	11.1	9.7

continued

2020	CCA 3	Demond	7.7	12.5	18.8	10.2	11.1	9.7
2020	CCA 4	Miears	14.6	10.9	31.0	9.2	10.6	11.5
2020	CCA 4	Clinton	85.4	89.1	69.0	9.2	10.6	11.5
2020	President	Other	9.5	4.0	11.3	11.2	13.9	13.5
2020	President	Bloomberg	9.4	12.8	18.5	11.2	13.9	13.5
2020	President	Warren	11.7	3.4	8.2	11.2	13.9	13.5
2020	President	Sanders	26.2	29.7	29.1	11.2	13.9	13.5
2020	President	Biden	43.2	50.0	33.0	11.2	13.9	13.5
2020	RR Comm 1	Stone	22.1	22.0	19.2	9.0	11.2	10.9
2020	RR Comm 1	Watson	18.2	36.2	30.6	9.0	11.2	10.9
2020	RR Comm 1	Alonzo	23.1	28.0	36.8	9.0	11.2	10.9
2020	RR Comm 1	Castaneda	36.7	13.8	13.5	9.0	11.2	10.9
2020	RR Comm 1 Runoff	Alonzo	31.9	56.7	47.9	4.2	7.9	9.4
2020	RR Comm 1 Runoff	Castaneda	68.1	43.3	52.1	4.2	7.9	9.4
2020	Sup Ct 6	Praeger	14.6	23.8	32.3	8.9	11.1	11.2
2020	Sup Ct 6	Cheng	85.4	76.2	67.7	8.9	11.1	11.2
2020	Sup Ct 7	Voss	30.4	24.6	30.6	8.8	11.3	10.9
2020	Sup Ct 7	Williams	69.6	75.4	69.4	8.8	11.3	10.9
2020	Sup Ct 8	Triana	74.6	53.6	53.7	9.0	11.1	10.0
2020	Sup Ct 8	Kelly	25.4	46.4	46.3	9.0	11.1	10.0
2020	Sup Ct Chief	Zimmerer	10.6	15.5	29.1	10.1	11.4	10.7
2020	Sup Ct Chief	Meachum	89.4	84.5	70.9	10.1	11.4	10.7
2020	U.S. Sen	Garcia	9.3	5.0	10.0	9.4	13.3	11.0
2020	U.S. Sen	Edwards	4.6	2.2	5.7	9.4	13.3	11.0
2020	U.S. Sen	Other	28.4	26.2	38.2	9.4	13.3	11.0
2020	U.S. Sen	Ramirez	9.1	3.6	7.9	9.4	13.3	11.0
2020	U.S. Sen	Hegar	26.8	3.3	9.4	9.4	13.3	11.0
2020	U.S. Sen	West	21.8	59.7	28.7	9.4	13.3	11.0
2020	U.S. Sen Runoff	West	47.7	89.2	73.7	4.1	9.7	8.0
2020	U.S. Sen Runoff	Hegar	52.3	10.8	26.3	4.1	9.7	8.0

Notes: VTD election data from the Texas Legislative Council. Elections used in the analysis were Democratic primary and Democratic primary runoff elections for US President, US Senate, Governor, Lt. Governor, State Supreme Court, Court of Criminal Appeals, Comptroller, Land Commissioner, and Railroad Commissioner, for 2016, 2018, and 2020. Ecological Inference (EI) results estimated using the EI package in R.

Table A13: Primary Analysis - EI Estimates - DM1 CD12

Year	Election	Candidate	Estimated Percent Support			Estimated Turnout Rate		
			White	Black	Hispanic	White	Black	Hispanic
2016	President	Other	0.8	1.3	1.1	10.3	11.3	9.4
2016	President	Clinton	66.3	84.0	63.9	10.3	11.3	9.4
2016	President	Sanders	32.9	14.7	35.0	10.3	11.3	9.4
2016	RR Comm 1	Burnam	42.0	22.0	17.8	6.6	9.2	7.6
2016	RR Comm 1	Garrett	26.6	30.0	40.5	6.6	9.2	7.6
2016	RR Comm 1	Yarbrough	31.4	48.1	41.7	6.6	9.2	7.6
2016	RR Comm 1 Runoff	Garrett	40.9	32.6	35.3	0.6	1.2	0.8
2016	RR Comm 1 Runoff	Yarbrough	59.1	67.4	64.7	0.6	1.2	0.8
2018	Comptroller	Chevalier	70.1	47.8	49.1	7.2	6.8	4.8
2018	Comptroller	Mahoney	29.9	52.2	50.9	7.2	6.8	4.8
2018	Governor	Yarbrough	1.4	3.1	2.0	8.9	7.4	6.0
2018	Governor	Davis	2.7	12.1	5.0	8.9	7.4	6.0
2018	Governor	Valdez	65.4	64.3	77.1	8.9	7.4	6.0
2018	Governor	Ocegueda	1.5	2.5	2.6	8.9	7.4	6.0
2018	Governor	Other	5.4	8.2	5.0	8.9	7.4	6.0
2018	Governor	White	23.6	9.9	8.2	8.9	7.4	6.0
2018	Governor Runoff	Valdez	66.0	69.9	78.7	3.3	3.0	2.4
2018	Governor Runoff	White	34.0	30.1	21.3	3.3	3.0	2.4
2018	Land Comm	Suazo	76.3	55.3	75.4	7.3	6.1	5.3
2018	Land Comm	Morgan	23.7	44.7	24.6	7.3	6.1	5.3
2018	Lt. Governor	Collier	68.1	34.7	40.0	7.0	7.4	5.2
2018	Lt. Governor	Cooper	31.9	65.3	60.0	7.0	7.4	5.2
2018	RR Comm 1	McAllen	56.2	39.3	55.3	6.9	7.0	4.5
2018	RR Comm 1	Spellmon	43.8	60.7	44.7	6.9	7.0	4.5
2018	U.S. Sen	Kimbrough	5.8	32.2	12.9	9.8	6.9	4.8
2018	U.S. Sen	ORourke	84.5	36.3	41.6	9.8	6.9	4.8
2018	U.S. Sen	Hernandez	9.7	31.5	45.5	9.8	6.9	4.8
2020	CCA 3	DavisFrizell	80.6	66.6	67.2	16.0	12.4	7.8
2020	CCA 3	Wood	14.1	18.5	23.0	16.0	12.4	7.8
2020	CCA 3	Demond	5.3	14.9	9.8	16.0	12.4	7.8
2020	CCA 4	Clinton	88.4	80.9	75.5	15.5	12.4	7.9

continued

2020	CCA 4	Miears	11.6	19.1	24.5	15.5	12.4	7.9
2020	President	Warren	13.4	6.8	7.0	18.5	14.0	9.3
2020	President	Sanders	22.8	23.6	54.2	18.5	14.0	9.3
2020	President	Biden	41.9	47.9	16.9	18.5	14.0	9.3
2020	President	Other	9.8	9.8	11.0	18.5	14.0	9.3
2020	President	Bloomberg	12.1	11.9	10.9	18.5	14.0	9.3
2020	RR Comm 1	Watson	11.5	27.3	8.5	14.9	11.3	9.2
2020	RR Comm 1	Castaneda	46.1	16.4	20.7	14.9	11.3	9.2
2020	RR Comm 1	Stone	24.5	23.9	9.1	14.9	11.3	9.2
2020	RR Comm 1	Alonzo	18.0	32.4	61.7	14.9	11.3	9.2
2020	RR Comm 1 Runoff	Alonzo	17.9	51.4	55.1	7.9	9.9	3.3
2020	RR Comm 1 Runoff	Castaneda	82.1	48.6	44.9	7.9	9.9	3.3
2020	Sup Ct 6	Praeger	22.2	22.2	26.3	16.6	12.3	8.0
2020	Sup Ct 6	Cheng	77.8	77.8	73.7	16.6	12.3	8.0
2020	Sup Ct 7	Voss	26.8	23.4	31.1	15.7	12.9	8.1
2020	Sup Ct 7	Williams	73.2	76.6	68.9	15.7	12.9	8.1
2020	Sup Ct 8	Triana	73.7	59.3	69.7	15.9	11.9	8.1
2020	Sup Ct 8	Kelly	26.3	40.7	30.3	15.9	11.9	8.1
2020	Sup Ct Chief	Zimmerer	7.2	16.1	25.6	16.9	12.5	7.9
2020	Sup Ct Chief	Meachum	92.8	83.9	74.4	16.9	12.5	7.9
2020	U.S. Sen	Ramirez	9.5	6.4	14.0	16.2	14.7	8.4
2020	U.S. Sen	Garcia	5.2	6.5	20.0	16.2	14.7	8.4
2020	U.S. Sen	Other	17.1	7.5	31.0	16.2	14.7	8.4
2020	U.S. Sen	Hegar	26.7	6.5	5.3	16.2	14.7	8.4
2020	U.S. Sen	Edwards	14.3	6.5	5.2	16.2	14.7	8.4
2020	U.S. Sen	West	27.1	66.6	24.5	16.2	14.7	8.4
2020	U.S. Sen Runoff	Hegar	52.1	17.6	34.2	8.0	10.6	3.3
2020	U.S. Sen Runoff	West	47.9	82.4	65.8	8.0	10.6	3.3

Notes: VTD election data from the Texas Legislative Council. Elections used in the analysis were Democratic primary and Democratic primary runoff elections for US President, US Senate, Governor, Lt. Governor, State Supreme Court, Court of Criminal Appeals, Comptroller, Land Commissioner, and Railroad Commissioner, for 2016, 2018, and 2020. Ecological Inference (EI) results estimated using the EI package in R.

Table A14: Primary Analysis - EI Estimates - DM1 CD29

Year	Election	Candidate	Estimated Percent Support			Estimated Turnout Rate		
			White	Black	Hispanic	White	Black	Hispanic
2016	President	Other	0.9	1.1	1.7	8.6	17.1	6.7
2016	President	Sanders	36.0	14.9	28.2	8.6	17.1	6.7
2016	President	Clinton	63.2	84.0	70.1	8.6	17.1	6.7
2016	RR Comm 1	Yarbrough	29.9	60.3	37.1	4.7	13.1	5.4
2016	RR Comm 1	Garrett	19.2	26.6	46.9	4.7	13.1	5.4
2016	RR Comm 1	Burnam	50.9	13.0	15.9	4.7	13.1	5.4
2016	RR Comm 1 Runoff	Yarbrough	44.5	74.8	57.5	0.7	3.3	0.9
2016	RR Comm 1 Runoff	Garrett	55.5	25.2	42.5	0.7	3.3	0.9
2018	Comptroller	Mahoney	36.3	58.2	58.6	7.3	9.5	2.8
2018	Comptroller	Chevalier	63.7	41.8	41.4	7.3	9.5	2.8
2018	Governor	Other	3.2	7.2	9.6	9.1	9.5	3.1
2018	Governor	White	72.3	48.2	20.4	9.1	9.5	3.1
2018	Governor	Yarbrough	1.6	10.5	7.4	9.1	9.5	3.1
2018	Governor	Davis	1.8	21.1	8.5	9.1	9.5	3.1
2018	Governor	Valdez	19.0	9.2	46.4	9.1	9.5	3.1
2018	Governor	Ocegueda	2.1	3.7	7.7	9.1	9.5	3.1
2018	Governor Runoff	White	83.7	75.9	56.9	3.6	2.7	1.2
2018	Governor Runoff	Valdez	16.3	24.1	43.1	3.6	2.7	1.2
2018	Land Comm	Suazo	77.2	53.2	70.5	7.5	9.1	3.1
2018	Land Comm	Morgan	22.8	46.8	29.5	7.5	9.1	3.1
2018	Lt. Governor	Cooper	17.2	66.8	63.8	7.1	9.3	3.2
2018	Lt. Governor	Collier	82.8	33.2	36.2	7.1	9.3	3.2
2018	RR Comm 1	Spellmon	24.6	55.9	34.8	7.0	9.3	2.9
2018	RR Comm 1	McAllen	75.4	44.1	65.2	7.0	9.3	2.9
2018	U.S. Sen	Kimbrough	3.5	42.5	17.1	9.2	9.1	2.8
2018	U.S. Sen	Hernandez	5.8	28.9	39.9	9.2	9.1	2.8
2018	U.S. Sen	ORourke	90.7	28.6	43.0	9.2	9.1	2.8
2020	CCA 3	Wood	11.8	19.2	20.9	13.2	14.5	4.4
2020	CCA 3	DavisFrizell	70.3	58.8	61.6	13.2	14.5	4.4
2020	CCA 3	Demond	17.9	22.0	17.4	13.2	14.5	4.4
2020	CCA 4	Clinton	89.1	85.0	74.5	12.8	14.3	4.4

continued

2020	CCA 4	Miears	10.9	15.0	25.5	12.8	14.3	4.4
2020	President	Biden	41.6	46.1	15.7	17.7	16.2	6.1
2020	President	Warren	14.3	6.2	9.2	17.7	16.2	6.1
2020	President	Bloomberg	17.4	18.8	11.3	17.7	16.2	6.1
2020	President	Other	9.4	5.8	8.1	17.7	16.2	6.1
2020	President	Sanders	17.4	23.2	55.6	17.7	16.2	6.1
2020	RR Comm 1	Stone	23.1	26.6	10.0	12.7	14.1	5.4
2020	RR Comm 1	Castaneda	53.2	16.9	24.9	12.7	14.1	5.4
2020	RR Comm 1	Alonzo	16.2	28.9	53.8	12.7	14.1	5.4
2020	RR Comm 1	Watson	7.5	27.5	11.3	12.7	14.1	5.4
2020	RR Comm 1 Runoff	Castaneda	81.9	46.7	48.0	6.7	10.9	2.3
2020	RR Comm 1 Runoff	Alonzo	18.1	53.3	52.0	6.7	10.9	2.3
2020	Sup Ct 6	Praeger	30.7	29.4	31.4	13.5	14.5	4.4
2020	Sup Ct 6	Cheng	69.3	70.6	68.6	13.5	14.5	4.4
2020	Sup Ct 7	Williams	48.2	80.3	59.5	13.4	14.3	4.5
2020	Sup Ct 7	Voss	51.8	19.7	40.5	13.4	14.3	4.5
2020	Sup Ct 8	Triana	66.1	65.3	78.1	13.2	14.1	4.9
2020	Sup Ct 8	Kelly	33.9	34.7	21.9	13.2	14.1	4.9
2020	Sup Ct Chief	Zimmerer	17.6	28.1	39.3	14.3	15.2	4.0
2020	Sup Ct Chief	Meachum	82.4	71.9	60.7	14.3	15.2	4.0
2020	U.S. Sen	Edwards	12.2	30.6	9.0	14.8	14.9	5.6
2020	U.S. Sen	Other	32.8	39.6	46.7	14.8	14.9	5.6
2020	U.S. Sen	Garcia	3.0	6.4	19.6	14.8	14.9	5.6
2020	U.S. Sen	West	11.5	11.7	6.0	14.8	14.9	5.6
2020	U.S. Sen	Ramirez	6.5	3.4	10.2	14.8	14.9	5.6
2020	U.S. Sen	Hegar	34.0	8.4	8.5	14.8	14.9	5.6
2020	U.S. Sen Runoff	West	34.2	65.9	46.9	7.0	10.7	2.5
2020	U.S. Sen Runoff	Hegar	65.8	34.1	53.1	7.0	10.7	2.5

Notes: VTD election data from the Texas Legislative Council. Elections used in the analysis were Democratic primary and Democratic primary runoff elections for US President, US Senate, Governor, Lt. Governor, State Supreme Court, Court of Criminal Appeals, Comptroller, Land Commissioner, and Railroad Commissioner, for 2016, 2018, and 2020. Ecological Inference (EI) results estimated using the EI package in R.

Table A15: Primary Analysis - EI Estimates - DM1 CD33

Year	Election	Candidate	Estimated Percent Support			Estimated Turnout Rate		
			White	Black	Hispanic	White	Black	Hispanic
2016	President	Other	1.1	0.7	1.5	6.7	17.2	9.3
2016	President	Clinton	53.8	87.3	65.8	6.7	17.2	9.3
2016	President	Sanders	45.1	12.0	32.7	6.7	17.2	9.3
2016	RR Comm 1	Yarbrough	27.1	41.2	24.0	4.4	14.2	8.2
2016	RR Comm 1	Garrett	27.3	22.0	29.1	4.4	14.2	8.2
2016	RR Comm 1	Burnam	45.6	36.8	46.9	4.4	14.2	8.2
2016	RR Comm 1 Runoff	Yarbrough	57.0	69.6	63.8	0.5	1.2	0.9
2016	RR Comm 1 Runoff	Garrett	43.0	30.4	36.2	0.5	1.2	0.9
2018	Comptroller	Chevalier	57.1	39.3	43.5	4.3	9.1	3.7
2018	Comptroller	Mahoney	42.9	60.7	56.5	4.3	9.1	3.7
2018	Governor	Ocegueda	2.7	2.2	5.5	5.6	9.6	3.9
2018	Governor	Davis	5.9	21.4	7.8	5.6	9.6	3.9
2018	Governor	Yarbrough	3.0	4.5	5.9	5.6	9.6	3.9
2018	Governor	Other	8.3	6.9	10.2	5.6	9.6	3.9
2018	Governor	White	26.7	14.5	13.0	5.6	9.6	3.9
2018	Governor	Valdez	53.5	50.5	57.6	5.6	9.6	3.9
2018	Governor Runoff	Valdez	63.4	64.7	66.9	1.8	2.5	1.8
2018	Governor Runoff	White	36.6	35.3	33.1	1.8	2.5	1.8
2018	Land Comm	Suazo	70.2	57.5	67.6	4.9	8.9	3.7
2018	Land Comm	Morgan	29.8	42.5	32.4	4.9	8.9	3.7
2018	Lt. Governor	Collier	53.9	45.9	43.9	4.7	9.6	3.6
2018	Lt. Governor	Cooper	46.1	54.1	56.1	4.7	9.6	3.6
2018	RR Comm 1	McAllen	57.3	40.4	62.7	4.3	8.9	3.7
2018	RR Comm 1	Spellmon	42.7	59.6	37.3	4.3	8.9	3.7
2018	U.S. Sen	Kimbrough	10.3	29.7	16.6	6.0	8.7	3.5
2018	U.S. Sen	ORourke	72.6	39.7	47.8	6.0	8.7	3.5
2018	U.S. Sen	Hernandez	17.1	30.5	35.7	6.0	8.7	3.5
2020	CCA 3	DavisFrizell	80.9	64.6	61.6	9.5	13.9	5.6
2020	CCA 3	Wood	12.5	21.6	24.0	9.5	13.9	5.6
2020	CCA 3	Demond	6.6	13.8	14.4	9.5	13.9	5.6
2020	CCA 4	Miears	13.1	14.0	34.4	9.4	13.9	5.4

continued

2020	CCA 4	Clinton	86.9	86.0	65.6	9.4	13.9	5.4
2020	President	Other	8.4	4.9	9.5	10.7	16.9	7.5
2020	President	Warren	11.6	3.9	7.1	10.7	16.9	7.5
2020	President	Biden	37.1	52.5	18.9	10.7	16.9	7.5
2020	President	Sanders	33.8	25.3	51.0	10.7	16.9	7.5
2020	President	Bloomberg	9.0	13.4	13.5	10.7	16.9	7.5
2020	RR Comm 1	Castaneda	43.1	13.3	16.7	9.1	14.3	6.3
2020	RR Comm 1	Watson	14.4	35.4	15.3	9.1	14.3	6.3
2020	RR Comm 1	Stone	19.6	23.1	13.8	9.1	14.3	6.3
2020	RR Comm 1	Alonzo	22.8	28.2	54.2	9.1	14.3	6.3
2020	RR Comm 1 Runoff	Alonzo	27.6	53.4	52.2	4.5	11.5	3.0
2020	RR Comm 1 Runoff	Castaneda	72.4	46.6	47.8	4.5	11.5	3.0
2020	Sup Ct 6	Praeger	10.4	25.1	32.7	9.5	14.0	5.4
2020	Sup Ct 6	Cheng	89.6	74.9	67.3	9.5	14.0	5.4
2020	Sup Ct 7	Williams	63.0	77.9	53.5	9.1	14.6	5.6
2020	Sup Ct 7	Voss	37.0	22.1	46.5	9.1	14.6	5.6
2020	Sup Ct 8	Triana	79.7	56.1	63.7	9.6	13.8	5.4
2020	Sup Ct 8	Kelly	20.3	43.9	36.3	9.6	13.8	5.4
2020	Sup Ct Chief	Meachum	89.8	85.7	69.0	9.8	14.1	5.7
2020	Sup Ct Chief	Zimmerer	10.2	14.3	31.0	9.8	14.1	5.7
2020	U.S. Sen	West	11.7	55.1	9.4	8.6	16.3	6.7
2020	U.S. Sen	Ramirez	13.1	3.8	17.7	8.6	16.3	6.7
2020	U.S. Sen	Garcia	13.9	4.8	21.1	8.6	16.3	6.7
2020	U.S. Sen	Other	29.1	29.3	39.0	8.6	16.3	6.7
2020	U.S. Sen	Hegar	26.6	4.0	7.7	8.6	16.3	6.7
2020	U.S. Sen	Edwards	5.5	3.0	5.1	8.6	16.3	6.7
2020	U.S. Sen Runoff	Hegar	60.6	11.0	53.9	4.6	12.2	3.0
2020	U.S. Sen Runoff	West	39.4	89.0	46.1	4.6	12.2	3.0

Notes: VTD election data from the Texas Legislative Council. Elections used in the analysis were Democratic primary and Democratic primary runoff elections for US President, US Senate, Governor, Lt. Governor, State Supreme Court, Court of Criminal Appeals, Comptroller, Land Commissioner, and Railroad Commissioner, for 2016, 2018, and 2020. Ecological Inference (EI) results estimated using the EI package in R.

Table A16: Primary Analysis - EI Estimates - DM2 CD29

Year	Election	Candidate	Estimated Percent Support			Estimated Turnout Rate		
			White	Black	Hispanic	White	Black	Hispanic
2016	President	Sanders	59.4	15.2	23.3	6.1	10.2	9.0
2016	President	Other	2.9	1.6	1.1	6.1	10.2	9.0
2016	President	Clinton	37.7	83.1	75.7	6.1	10.2	9.0
2016	RR Comm 1	Yarbrough	34.7	57.1	38.8	4.7	7.4	6.4
2016	RR Comm 1	Garrett	31.6	28.8	43.1	4.7	7.4	6.4
2016	RR Comm 1	Burnam	33.7	14.1	18.1	4.7	7.4	6.4
2016	RR Comm 1 Runoff	Garrett	40.5	35.2	35.8	1.0	1.1	0.7
2016	RR Comm 1 Runoff	Yarbrough	59.5	64.8	64.2	1.0	1.1	0.7
2018	Comptroller	Chevalier	62.1	51.0	36.1	4.9	4.7	3.9
2018	Comptroller	Mahoney	37.9	49.0	63.9	4.9	4.7	3.9
2018	Governor	Ocegueda	6.0	5.1	6.4	5.9	6.0	4.1
2018	Governor	White	50.6	45.1	34.8	5.9	6.0	4.1
2018	Governor	Yarbrough	4.5	7.2	4.5	5.9	6.0	4.1
2018	Governor	Valdez	23.5	11.6	42.3	5.9	6.0	4.1
2018	Governor	Davis	7.2	21.4	6.5	5.9	6.0	4.1
2018	Governor	Other	8.3	9.5	5.5	5.9	6.0	4.1
2018	Governor Runoff	White	67.0	62.6	57.2	2.1	1.7	0.9
2018	Governor Runoff	Valdez	33.0	37.4	42.8	2.1	1.7	0.9
2018	Land Comm	Morgan	30.1	45.5	18.6	5.1	5.2	4.0
2018	Land Comm	Suazo	69.9	54.5	81.4	5.1	5.2	4.0
2018	Lt. Governor	Cooper	51.6	65.3	51.9	4.5	5.7	3.9
2018	Lt. Governor	Collier	48.4	34.7	48.1	4.5	5.7	3.9
2018	RR Comm 1	McAllen	62.3	40.7	72.3	4.5	5.3	3.9
2018	RR Comm 1	Spellmon	37.7	59.3	27.7	4.5	5.3	3.9
2018	U.S. Sen	Hernandez	24.9	28.7	30.7	6.4	5.3	3.8
2018	U.S. Sen	ORourke	61.8	37.0	55.1	6.4	5.3	3.8
2018	U.S. Sen	Kimbrough	13.3	34.3	14.2	6.4	5.3	3.8
2020	CCA 3	DavisFrizell	64.8	62.6	67.6	11.9	8.5	5.8
2020	CCA 3	Wood	16.8	19.2	15.7	11.9	8.5	5.8
2020	CCA 3	Demond	18.4	18.2	16.7	11.9	8.5	5.8
2020	CCA 4	Miears	20.6	17.2	13.4	12.4	8.2	5.6

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2020	CCA 4	Clinton	79.4	82.8	86.6	12.4	8.2	5.6
2020	President	Other	9.2	6.8	6.3	13.9	10.4	7.0
2020	President	Bloomberg	11.4	17.2	13.8	13.9	10.4	7.0
2020	President	Biden	31.7	52.2	21.7	13.9	10.4	7.0
2020	President	Warren	12.9	7.4	8.4	13.9	10.4	7.0
2020	President	Sanders	34.8	16.4	49.8	13.9	10.4	7.0
2020	RR Comm 1	Castaneda	43.3	17.1	30.3	11.8	8.4	6.2
2020	RR Comm 1	Watson	8.7	28.5	8.0	11.8	8.4	6.2
2020	RR Comm 1	Alonzo	24.5	26.4	51.9	11.8	8.4	6.2
2020	RR Comm 1	Stone	23.5	28.0	9.8	11.8	8.4	6.2
2020	RR Comm 1 Runoff	Castaneda	68.7	46.5	55.4	6.5	6.1	2.7
2020	RR Comm 1 Runoff	Alonzo	31.3	53.5	44.6	6.5	6.1	2.7
2020	Sup Ct 6	Cheng	67.7	69.3	76.4	12.5	7.9	5.8
2020	Sup Ct 6	Praeger	32.3	30.7	23.6	12.5	7.9	5.8
2020	Sup Ct 7	Williams	51.9	79.0	61.2	13.4	9.5	5.0
2020	Sup Ct 7	Voss	48.1	21.0	38.8	13.4	9.5	5.0
2020	Sup Ct 8	Triana	71.1	61.6	80.6	12.2	7.0	6.3
2020	Sup Ct 8	Kelly	28.9	38.4	19.4	12.2	7.0	6.3
2020	Sup Ct Chief	Meachum	78.8	77.1	67.1	12.7	8.4	5.6
2020	Sup Ct Chief	Zimmerer	21.2	22.9	32.9	12.7	8.4	5.6
2020	U.S. Sen	Ramirez	9.7	5.1	8.6	12.3	9.4	6.4
2020	U.S. Sen	Other	32.4	37.0	55.0	12.3	9.4	6.4
2020	U.S. Sen	West	7.7	13.2	6.4	12.3	9.4	6.4
2020	U.S. Sen	Hegar	28.2	10.5	8.8	12.3	9.4	6.4
2020	U.S. Sen	Garcia	11.1	7.0	13.5	12.3	9.4	6.4
2020	U.S. Sen	Edwards	10.9	27.1	7.7	12.3	9.4	6.4
2020	U.S. Sen Runoff	Hegar	69.2	32.7	53.9	6.7	7.0	2.6
2020	U.S. Sen Runoff	West	30.8	67.3	46.1	6.7	7.0	2.6

Notes: VTD election data from the Texas Legislative Council. Elections used in the analysis were Democratic primary and Democratic primary runoff elections for US President, US Senate, Governor, Lt. Governor, State Supreme Court, Court of Criminal Appeals, Comptroller, Land Commissioner, and Railroad Commissioner, for 2016, 2018, and 2020. Ecological Inference (EI) results estimated using the EI package in R.

Table A17: Primary Analysis - EI Estimates - DM2 CD33

Year	Election	Candidate	Estimated Percent Support			Estimated Turnout Rate		
			White	Black	Hispanic	White	Black	Hispanic
2016	President	Other	0.7	0.5	1.8	8.4	16.4	8.8
2016	President	Clinton	56.0	89.5	53.8	8.4	16.4	8.8
2016	President	Sanders	43.3	9.9	44.5	8.4	16.4	8.8
2016	RR Comm 1	Garrett	19.1	20.1	37.5	5.3	12.2	10.5
2016	RR Comm 1	Yarbrough	22.0	45.0	31.3	5.3	12.2	10.5
2016	RR Comm 1	Burnam	58.8	34.9	31.2	5.3	12.2	10.5
2016	RR Comm 1 Runoff	Yarbrough	56.2	70.6	59.5	0.4	1.0	1.1
2016	RR Comm 1 Runoff	Garrett	43.8	29.4	40.5	0.4	1.0	1.1
2018	Comptroller	Mahoney	43.3	62.9	59.4	5.5	7.4	6.3
2018	Comptroller	Chevalier	56.7	37.1	40.6	5.5	7.4	6.3
2018	Governor	Davis	4.3	25.6	12.0	6.5	8.3	5.8
2018	Governor	Valdez	53.9	49.5	45.1	6.5	8.3	5.8
2018	Governor	Ocegueda	2.6	2.2	5.8	6.5	8.3	5.8
2018	Governor	Other	8.0	6.3	11.1	6.5	8.3	5.8
2018	Governor	Yarbrough	2.6	4.1	7.1	6.5	8.3	5.8
2018	Governor	White	28.5	12.5	18.9	6.5	8.3	5.8
2018	Governor Runoff	White	40.8	37.1	37.4	2.2	2.1	2.7
2018	Governor Runoff	Valdez	59.2	62.9	62.6	2.2	2.1	2.7
2018	Land Comm	Morgan	26.2	41.6	42.4	5.9	6.8	6.9
2018	Land Comm	Suazo	73.8	58.4	57.6	5.9	6.8	6.9
2018	Lt. Governor	Cooper	41.8	57.3	53.1	5.5	7.7	6.2
2018	Lt. Governor	Collier	58.2	42.7	46.9	5.5	7.7	6.2
2018	RR Comm 1	McAllen	62.1	39.5	46.1	5.3	7.2	6.1
2018	RR Comm 1	Spellmon	37.9	60.5	53.9	5.3	7.2	6.1
2018	U.S. Sen	Hernandez	10.0	33.6	41.1	6.8	7.9	4.8
2018	U.S. Sen	ORourke	83.0	33.5	33.6	6.8	7.9	4.8
2018	U.S. Sen	Kimbrough	7.0	32.9	25.3	6.8	7.9	4.8
2020	CCA 3	Wood	11.1	21.6	24.1	10.5	13.0	6.9
2020	CCA 3	Demond	6.3	11.5	19.8	10.5	13.0	6.9
2020	CCA 3	DavisFrizell	82.6	66.8	56.1	10.5	13.0	6.9
2020	CCA 4	Clinton	87.2	88.4	60.4	10.1	13.2	7.3

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2020	CCA 4	Miears	12.8	11.6	39.6	10.1	13.2	7.3
2020	President	Sanders	27.8	25.2	48.6	12.8	15.5	10.0
2020	President	Warren	13.0	3.1	7.8	12.8	15.5	10.0
2020	President	Bloomberg	10.7	12.2	13.0	12.8	15.5	10.0
2020	President	Biden	39.3	55.1	20.5	12.8	15.5	10.0
2020	President	Other	9.2	4.5	10.1	12.8	15.5	10.0
2020	RR Comm 1	Stone	22.2	21.2	21.6	10.4	12.9	8.6
2020	RR Comm 1	Castaneda	41.5	12.1	19.6	10.4	12.9	8.6
2020	RR Comm 1	Watson	13.6	35.4	20.3	10.4	12.9	8.6
2020	RR Comm 1	Alonzo	22.6	31.3	38.5	10.4	12.9	8.6
2020	RR Comm 1 Runoff	Castaneda	74.2	44.7	50.0	5.7	10.3	5.5
2020	RR Comm 1 Runoff	Alonzo	25.8	55.3	50.0	5.7	10.3	5.5
2020	Sup Ct 6	Praeger	13.8	24.3	28.0	10.8	12.9	8.0
2020	Sup Ct 6	Cheng	86.2	75.7	72.0	10.8	12.9	8.0
2020	Sup Ct 7	Williams	65.7	78.9	51.3	10.2	13.8	7.7
2020	Sup Ct 7	Voss	34.3	21.1	48.7	10.2	13.8	7.7
2020	Sup Ct 8	Kelly	22.6	43.5	39.8	10.7	12.9	7.0
2020	Sup Ct 8	Triana	77.4	56.5	60.2	10.7	12.9	7.0
2020	Sup Ct Chief	Zimmerer	8.8	11.2	41.3	11.2	12.9	7.7
2020	Sup Ct Chief	Meachum	91.2	88.8	58.7	11.2	12.9	7.7
2020	U.S. Sen	Hegar	25.1	3.2	8.8	10.7	14.7	9.0
2020	U.S. Sen	West	18.3	56.2	16.2	10.7	14.7	9.0
2020	U.S. Sen	Other	27.6	28.6	37.8	10.7	14.7	9.0
2020	U.S. Sen	Ramirez	13.6	3.8	10.2	10.7	14.7	9.0
2020	U.S. Sen	Edwards	5.5	3.2	6.9	10.7	14.7	9.0
2020	U.S. Sen	Garcia	9.8	4.9	20.1	10.7	14.7	9.0
2020	U.S. Sen Runoff	Hegar	56.6	10.6	36.7	6.3	11.1	5.3
2020	U.S. Sen Runoff	West	43.4	89.4	63.3	6.3	11.1	5.3

Notes: VTD election data from the Texas Legislative Council. Elections used in the analysis were Democratic primary and Democratic primary runoff elections for US President, US Senate, Governor, Lt. Governor, State Supreme Court, Court of Criminal Appeals, Comptroller, Land Commissioner, and Railroad Commissioner, for 2016, 2018, and 2020. Ecological Inference (EI) results estimated using the EI package in R.

Appendix B

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EDUCATION

Harvard University	Ph.D., Political Science	1989
University of Minnesota	B.A., Political Science B.S., Economics	1984

PROFESSIONAL EXPERIENCE

ACADEMIC POSITIONS

2016-present	Frank G. Thompson Professor of Government, Harvard University
2008-present	Professor, Department of Government, Harvard University
2015-present	Director, Center for American Politics, Harvard University
1998-2009	Elting Morison Professor, Department of Political Science, MIT (Associate Head, 2001-2005)
1995-1998	Associate Professor, Department of Political Science, MIT
1993-1994	National Fellow, The Hoover Institution
1989-1993	Assistant Professor, Department of Political Science, University of California, Los Angeles

FELLOWSHIPS AND HONORS

American Academy of Arts and Sciences	2007
Carnegie Scholar	2000-02
National Fellow, The Hoover Institution	1993-94
Harry S. Truman Fellowship	1982-86

PUBLICATIONS

Books

2022 *American Government*, 17th edition. With Ted Lowi, Benjamin Ginsberg and Kenneth Shepsle. W.W. Norton.

2014 *Cheap and Clean: How Americans Think About Energy in the Age of Global Warming*. With David Konisky. MIT Press. Recipient of the Donald K. Price book award.

2008 *The End of Inequality: One Person, One Vote and the Transformation of American Politics*. With James M. Snyder, Jr., W. W. Norton.

1996 *Going Negative: How Political Advertising Divides and Shrinks the American Electorate*. With Shanto Iyengar. The Free Press. Recipient of the Goldsmith book award.

1993 *Media Game: American Politics in the Television Age*. With Roy Behr and Shanto Iyengar. Macmillan.

Journal Articles

2022 "Constitutions, Federalism, and National Integration," *European Economic Review*. (with Maria Socorro Puy).

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2020 "Unilateral Action and Presidential Accountability," *Presidential Studies Quarterly* 50 (March): 129-145. (with Jon Rogowski)

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2018 "Learning from Recounts" Election Law Journal 17: 100-116 (with Barry C. Burden, Kenneth R. Mayer, and Charles Stewart III) https://doi.org/10.1089/elj.2017.0440

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2017 "Identity Politics" (with Socorro Puy) *Public Choice*. 168: 1-19. DOI 10.1007/s11127-016-0371-2

2016 "A 200-Year Statistical History of the Gerrymander" (with Maxwell Palmer) *The Ohio State University Law Journal*

2016 "Do Americans Prefer Co-Ethnic Representation? The Impact of Race on House Incumbent Evaluations" (with Bernard Fraga) *Stanford University Law Review* 68: 1553-1594

2016 Revisiting Public Opinion on Voter Identification and Voter Fraud in an Era of

Increasing Partisan Polarization*"* (with Nathaniel Persily) *Stanford Law Review* 68: 1455-1489

2015 "The Perils of Cherry Picking Low Frequency Events in Large Sample Surveys" (with Brian Schaffner and Samantha Luks) *Electoral Studies* 40 (December): 409-410.

2015 "Testing *Shaw v. Reno*: Do Majority-Minority Districts Cause Expressive Harms?" (with Nathaniel Persily) *New York University Law Review* 90

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2013 "Cooperative Survey Research" *Annual Review of Political Science* (with Douglas Rivers)

2013 "Social Sciences and the Alternative Energy Future" *Daedalus* (with Bob Fri)

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Electorate" *Political Analysis* (with Eitan Hersh)

2012 "Arizona Free Enterprise v. Bennett and the Problem of Campaign Finance" *Supreme Court Review* 2011(1):39-79

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2005 "Studying Elections" *Policy Studies Journal* (with Charles H. Stewart III and R. Michael Alvarez).

2005 "Legislative Bargaining under Weighted Voting" *American Economic Review* (with James M. Snyder, Jr., and Michael Ting)

2005 "Voting Weights and Formateur Advantages in Coalition Formation: Evidence from Parliamentary Coalitions, 1946 to 2002" (with James M. Snyder, Jr., Aaron B. Strauss, and Michael M. Ting) *American Journal of Political Science*.

2005 "Reapportionment and Party Realignment in the American States" *Pennsylvania Law Review* (with James M. Snyder, Jr.)

2004 "Residual Votes Attributable to Voting Technologies" (with Charles Stewart) *Journal of Politics*

2004 "Using Term Limits to Estimate Incumbency Advantages When Office Holders Retire Strategically" (with James M. Snyder, Jr.). *Legislative Studies Quarterly* vol. 29, November 2004, pages 487-516.

2004 "Did Firms Profit From Soft Money?" (with James M. Snyder, Jr., and Michiko Ueda) *Election Law Journal* vol. 3, April 2004.

2003 "Bargaining in Bicameral Legislatures" (with James M. Snyder, Jr. and Mike Ting) *American Political Science Review*, August, 2003.

2003 "Why Is There So Little Money in U.S. Politics?" (with James M. Snyder, Jr.) *Journal of Economic Perspectives*, Winter, 2003.

2002 "Equal Votes, Equal Money: Court-Ordered Redistricting and the Public Spending in the American States" (with Alan Gerber and James M. Snyder, Jr.) *American Political Science Review*, December, 2002.
Paper awarded the Heinz Eulau award for the best paper in the American Political Science Review.

2002 "Are PAC Contributions and Lobbying Linked?" (with James M. Snyder, Jr. and Micky Tripathi) *Business and Politics* 4, no. 2.

2002 "The Incumbency Advantage in U.S. Elections: An Analysis of State and Federal Offices, 1942-2000" (with James Snyder) *Election Law Journal*, 1, no. 3.

2001 "Voting Machines, Race, and Equal Protection." *Election Law Journal*, vol. 1, no. 1

2001 "Models, assumptions, and model checking in ecological regressions" (with Andrew Gelman, David Park, Phillip Price, and Larraine Minnite) *Journal of the Royal Statistical Society*, series A, 164: 101-118.

2001 "The Effects of Party and Preferences on Congressional Roll Call Voting." (with James Snyder and Charles Stewart) *Legislative Studies Quarterly* (forthcoming).
Paper awarded the *Jewell-Lowenberg Award* for the best paper published on legislative politics in 2001. Paper awarded the *Jack Walker Award* for the best paper published on party politics in 2001.

2001 "Candidate Positions in Congressional Elections," (with James Snyder and

Charles Stewart). *American Journal of Political Science* 45 (November).

2000 "Old Voters, New Voters, and the Personal Vote," (with James Snyder and Charles Stewart) *American Journal of Political Science* 44 (February).

2000 "Soft Money, Hard Money, Strong Parties," (with James Snyder) *Columbia Law Review* 100 (April):598 - 619.

2000 "Campaign War Chests and Congressional Elections," (with James Snyder) *Business and Politics*. 2 (April): 9-34.

1999 "Replicating Experiments Using Surveys and Aggregate Data: The Case of Negative Advertising." (with Shanto Iyengar and Adam Simon) *American Political Science Review* 93 (December).

1999 "Valence Politics and Equilibrium in Spatial Models," (with James Snyder), *Public Choice.*

1999 "Money and Institutional Power," (with James Snyder), *Texas Law Review* 77 (June, 1999): 1673-1704.

1997 "Incumbency Advantage and the Persistence of Legislative Majorities," (with Alan Gerber), *Legislative Studies Quarterly* 22 (May 1997).

1996 "The Effects of Ballot Access Rules on U.S. House Elections," (with Alan Gerber), *Legislative Studies Quarterly* 21 (May 1996).

1994 "Riding the Wave and Issue Ownership: The Importance of Issues in Political Advertising and News," (with Shanto Iyengar) *Public Opinion Quarterly* 58: 335-357.

1994 "Horseshoes and Horseraces: Experimental Evidence of the Effects of Polls on Campaigns," (with Shanto Iyengar) *Political Communications* 11/4 (October-December): 413-429.

1994 "Does Attack Advertising Demobilize the Electorate?" (with Shanto Iyengar), *American Political Science Review* 89 (December).

1994 "The Mismeasure of Campaign Spending: Evidence from the 1990 U.S. House Elections," (with Alan Gerber) *Journal of Politics* 56 (September).

1993 "Poll Faulting," (with Thomas R. Belin) *Chance* 6 (Winter): 22-28.

1991 "The Vanishing Marginals and Electoral Responsiveness," (with David Brady and Morris Fiorina) *British Journal of Political Science* 22 (November): 21-38.

1991 "Mass Media and Elections: An Overview," (with Roy Behr and Shanto Iyengar) *American Politics Quarterly* 19/1 (January): 109-139.

1990 "The Limits of Unraveling in Interest Groups," *Rationality and Society* 2: 394-400.

1990 "Measuring the Consequences of Delegate Selection Rules in Presidential Nominations," (with Gary King) *Journal of Politics* 52: 609-621.

1989 "The Nature of Utility Functions in Mass Publics," (with Henry Brady) *American Political Science Review* 83: 143-164.

Special Reports and Policy Studies

2010 *The Future of Nuclear Power*, Revised.

2006 *The Future of Coal.* MIT Press. Continued reliance on coal as a primary power source will lead to very high concentrations of carbon dioxide in the atmosphere, resulting in global warming. This cross-disciplinary study – drawing on faculty from Physics, Economics, Chemistry, Nuclear Engineering, and Political Science – develop a road map for technology research and development policy in order to address the challenges of carbon emissions from expanding use of coal for electricity and heating throughout the world.

2003 *The Future of Nuclear Power*. MIT Press. This cross-disciplinary study – drawing on faculty from Physics, Economics, Chemistry, Nuclear Engineering, and Political Science – examines the what contribution nuclear power can make to meet growing electricity demand, especially in a world with increasing carbon dioxide emissions from fossil fuel power plants.

2002 "Election Day Registration." A report prepared for DEMOS. This report analyzes the possible effects of Proposition 52 in California based on the experiences of 6 states with election day registration.

2001 *Voting: What Is, What Could Be.* A report of the Caltech/MIT Voting Technology Project. This report examines the voting system, especially technologies for casting and counting votes, registration systems, and polling place operations, in the United States. It was widely used by state and national governments in formulating election reforms following the 2000 election.

2001 "An Assessment of the Reliability of Voting Technologies." A report of the Caltech/MIT Voting Technology Project. This report provided the first nationwide assessment of voting equipment performance in the United States. It was prepared for the Governor's Select Task Force on Election Reform in Florida.

Chapters in Edited Volumes

2016 "Taking the Study of Public Opinion Online" (with Brian Schaffner) *Oxford Handbook of Public Opinion*, R. Michael Alvarez, ed. Oxford University Press: New York, NY.

2014 "Voter Registration: The Process and Quality of Lists*" The Measure of American Elections*, Barry Burden, ed..

2012 "Using Recounts to Measure the Accuracy of Vote Tabulations: Evidence from New Hampshire Elections, 1946-2002" in Confirming Elections, R. Michael Alvarez, Lonna Atkeson, and Thad Hall, eds. New York: Palgrave, Macmillan.

2010 "Dyadic Representation" in Oxford Handbook on Congress, Eric Schickler, ed., Oxford University Press.

2008 "Voting Technology and Election Law" in *America Votes!*, Benjamin Griffith, editor, Washington, DC: American Bar Association.

2007 "What Did the Direct Primary Do to Party Loyalty in Congress" (with Shigeo Hirano and James M. Snyder Jr.) in *Process, Party and Policy Making: Further New Perspectives on the History of Congress*, David Brady and Matthew D. McCubbins (eds.), Stanford University Press, 2007.

2007 "Election Administration and Voting Rights" in *Renewal of the Voting Rights Act*, David Epstein and Sharyn O'Hallaran, eds. Russell Sage Foundation.

2006 "The Decline of Competition in Primary Elections," (with John Mark Hansen, Shigeo Hirano, and James M. Snyder, Jr.) *The Marketplace of Democracy*, Michael P. McDonald and John Samples, eds. Washington, DC: Brookings.

2005 "Voters, Candidates and Parties" in *Handbook of Political Economy*, Barry Weingast and Donald Wittman, eds. New York: Oxford University Press.

2003 "Baker v. Carr in Context, 1946 – 1964" (with Samuel Isaacharoff) in *Constitutional Cases in Contex*t, Michael Dorf, editor. New York: Foundation Press.

2002 "Corruption and the Growth of Campaign Spending"(with Alan Gerber and James Snyder). *A User's Guide to Campaign Finance*, Jerry Lubenow, editor. Rowman and Littlefield.

2001 "The Paradox of Minimal Effects," in Henry Brady and Richard Johnston, eds., *Do Campaigns Matter*? University of Michigan Press.

2001 "Campaigns as Experiments," in Henry Brady and Richard Johnson, eds., Do *Campaigns Matter*? University of Michigan Press.

2000 "Money and Office," (with James Snyder) in David Brady and John Cogan, eds., *Congressional Elections: Continuity and Change*. Stanford University Press.

1996 "The Science of Political Advertising," (with Shanto Iyengar) in *Political Persuasion and Attitude Change*, Richard Brody, Diana Mutz, and Paul Sniderman, eds. Ann Arbor, MI: University of Michigan Press.

1995 "Evolving Perspectives on the Effects of Campaign Communication," in Philo Warburn, ed., *Research in Political Sociology*, vol. 7, JAI.

1995 "The Effectiveness of Campaign Advertising: It's All in the Context," (with Shanto Iyengar) in *Campaigns and Elections American Style*, Candice Nelson and James A. Thurber, eds. Westview Press.

1993 "Information and Electoral Attitudes: A Case of Judgment Under Uncertainty," (with Shanto Iyengar), in *Explorations in Political Psychology*, Shanto Iyengar and William McGuire, eds. Durham: Duke University Press.

Working Papers

2009 "Sociotropic Voting and the Media" (with Marc Meredith and Erik Snowberg), American National Election Study Pilot Study Reports, John Aldrich editor.

2007 "Public Attitudes Toward America's Energy Options: Report of the 2007 MIT Energy Survey" CEEPR Working Paper 07-002 and CANES working paper.

2006 "Constituents' Policy Perceptions and Approval of Members' of Congress" CCES Working Paper 06-01 (with Phil Jones).

2004 "Using Recounts to Measure the Accuracy of Vote Tabulations: Evidence from New Hampshire Elections, 1946 to 2002" (with Andrew Reeves).

2002 "Evidence of Virtual Representation: Reapportionment in California," (with Ruimin He and James M. Snyder).

1999 "Why did a majority of Californians vote to lower their own power?" (with James Snyder and Jonathan Woon). Paper presented at the annual meeting of the American Political Science Association, Atlanta, GA, September, 1999.
Paper received the award for the best paper on Representation at the 1999 Annual Meeting of the APSA.

1999 "Has Television Increased the Cost of Campaigns?" (with Alan Gerber and James Snyder).

1996 "Money, Elections, and Candidate Quality," (with James Snyder).

1996 "Party Platform Choice - Single- Member District and Party-List Systems,"(with James Snyder).

1995 "Messages Forgotten" (with Shanto Iyengar).

1994 "Consumer Contributors and the Returns to Fundraising: A Microeconomic Analysis," (with Alan Gerber), presented at the Annual Meeting of the American Political Science Association, September.

1992 "Biases in Ecological Regression," (with R. Douglas Rivers) August, (revised February 1994). Presented at the Midwest Political Science Association Meetings, April 1994, Chicago, IL.

1992 "Using Aggregate Data to Correct Nonresponse and Misreporting in Surveys" (with R. Douglas Rivers). Presented at the annual meeting of the Political Methodology Group, Cambridge, Massachusetts, July.

1991 "The Electoral Effects of Issues and Attacks in Campaign Advertising" (with Shanto Iyengar). Presented at the Annual Meeting of the American Political Science Association, Washington, DC.

1991 "Television Advertising as Campaign Strategy: Some Experimental Evidence" (with Shanto Iyengar). Presented at the Annual Meeting of the American Association for Public Opinion Research, Phoenix.

1991 "Why Candidates Attack: Effects of Televised Advertising in the 1990 California Gubernatorial Campaign," (with Shanto Iyengar). Presented at the Annual Meeting of the Western Political Science Association, Seattle, March.

1990 "Winning is Easy, But It Sure Ain't Cheap." Working Paper #90-4, Center for the American Politics and Public Policy, UCLA. Presented at the Political Science Departments at Rochester University and the University of Chicago.

Research Grants

1989-1990 Markle Foundation. "A Study of the Effects of Advertising in the 1990 California Gubernatorial Campaign." Amount: $50,000

1991-1993 Markle Foundation. "An Experimental Study of the Effects of Campaign Advertising." Amount: $150,000

1991-1993	NSF. "An Experimental Study of the Effects of Advertising in the 1992 California Senate Electoral." Amount: $100,000
1994-1995	MIT Provost Fund. "Money in Elections: A Study of the Effects of Money on Electoral Competition." Amount: $40,000
1996-1997	National Science Foundation. "Campaign Finance and Political Representation." Amount: $50,000
1997	National Science Foundation. "Party Platforms: A Theoretical Investigation of Party Competition Through Platform Choice." Amount: $40,000
1997-1998	National Science Foundation. "The Legislative Connection in Congressional Campaign Finance. Amount: $150,000
1999-2000	MIT Provost Fund. "Districting and Representation." Amount: $20,000.
1999-2002	Sloan Foundation. "Congressional Staff Seminar." Amount: $156,000.
2000-2001	Carnegie Corporation. "The Caltech/MIT Voting Technology Project." Amount: $253,000.
2001-2002	Carnegie Corporation. "Dissemination of Voting Technology Information." Amount: $200,000.
2003-2005	National Science Foundation. "State Elections Data Project." Amount: $256,000.
2003-2004	Carnegie Corporation. "Internet Voting." Amount: $279,000.
2003-2005	Knight Foundation. "Accessibility and Security of Voting Systems." Amount: $450,000.
2006-2008	National Science Foundation, "Primary Election Data Project," $186,000
2008-2009	Pew/JEHT. "Measuring Voting Problems in Primary Elections, A National Survey." Amount: $300,000
2008-2009	Pew/JEHT. "Comprehensive Assessment of the Quality of Voter Registration Lists in the United States: A pilot study proposal" (with Alan Gerber). Amount: $100,000.
2010-2011	National Science Foundation, "Cooperative Congressional Election Study," $360,000

2010-2012 Sloan Foundation, "Precinct-Level U. S. Election Data," $240,000.

2012-2014 National Science Foundation, "Cooperative Congressional Election Study, 2010-2012 Panel Study" $425,000

2012-2014 National Science Foundation, "2012 Cooperative Congressional Election Study," $475,000

2014-2016 National Science Foundation, "Cooperative Congressional Election Study, 2010-2014 Panel Study" $510,000

2014-2016 National Science Foundation, "2014 Cooperative Congressional Election Study," $400,000

2016-2018 National Science Foundation, "2016 Cooperative Congressional Election Study," $485,000

2018-2020 National Science Foundation, "2018 Cooperative Congressional Election Study," $844,784.

2019-2022 National Science Foundation, RIDIR: "Collaborative Research: Analytic Tool for Poststratification and small-area estimation for survey data." $942,607

Professional Boards

Editor, Cambridge University Press Book Series, Political Economy of Institutions and Decisions, 2006-2016

Member, Board of the Reuters International School of Journalism, Oxford University, 2007 to present.

Member, Academic Advisory Board, Electoral Integrity Project, 2012 to present.

Contributing Editor, *Boston Review*, The State of the Nation.

Member, Board of Overseers, American National Election Studies, 1999 - 2013.

Associate Editor, Public Opinion Quarterly, 2012 to 2013.

Editorial Board of Harvard Data Science Review, 2018 to present.
Editorial Board of American Journal of Political Science, 2005 to 2009.
Editorial Board of Legislative Studies Quarterly, 2005 to 2010.
Editorial Board of Public Opinion Quarterly, 2006 to present.
Editorial Board of the Election Law Journal, 2002 to present.

Editorial Board of the Harvard International Journal of Press/Politics, 1996 to 2008.
Editorial Board of Business and Politics, 2002 to 2008.
Scientific Advisory Board, Polimetrix, 2004 to 2006.

Special Projects and Task Forces

Principal Investigator, Cooperative Congressional Election Study, 2005 – present.

CBS News Election Decision Desk, 2006-present

Co-Director, Caltech/MIT Voting Technology Project, 2000-2004.

Co-Organizer, MIT Seminar for Senior Congressional and Executive Staff, 1996-2007.

MIT Energy Innovation Study, 2009-2010.
MIT Energy Initiative, Steering Council, 2007-2008
MIT Coal Study, 2004-2006.
MIT Energy Research Council, 2005-2006.
MIT Nuclear Study, 2002-2004.
Harvard University Center on the Environment, Council, 2009-present

Expert Witness, Consultation, and Testimony

2001	Testimony on Election Administration, U. S. Senate Committee on Commerce.
2001	Testimony on Voting Equipment, U.S. House Committee on Science, Space, and Technology
2001	Testimony on Voting Equipment, U.S. House Committee on House Administration
2001	Testimony on Voting Equipment, Congressional Black Caucus
2002-2003	*McConnell v. FEC*, 540 U.S. 93 (2003), consultant to the Brennan Center.
2009	Amicus curiae brief with Professors Nathaniel Persily and Charles Stewart on behalf of neither party to the U.S. Supreme Court in the case of *Northwest Austin Municipal Utility District Number One v. Holder*, 557 U.S. 193 (2009).
2009	Testimony on Voter Registration, U. S. Senate Committee on Rules.
2011-2015	*Perez v. Perry*, U. S. District Court in the Western District of Texas (No. 5:11-cv-00360). Exert witness on behalf of Rodriguez intervenors.
2011-2013	*State of Texas v. United States,* the U.S. District Court in the District of Columbia (No. 1:11-cv-01303), expert witness on behalf of the Gonzales intervenors.
2012-2013	*State of Texas v. Holder*, U.S. District Court in the District of Columbia (No. 1:12-cv-00128), expert witness on behalf of the United States.
2011-2012	*Guy v. Miller* in U.S. District Court for Nevada (No. 11-OC-00042-1B), expert witness on behalf of the Guy plaintiffs.
2012	*In re Senate Joint Resolution of Legislative Apportionment*, Florida Supreme

	Court (Nos. 2012-CA-412, 2012-CA-490), consultant for the Florida Democratic Party.
2012-2014	*Romo v. Detzner*, Circuit Court of the Second Judicial Circuit in Florida (No. 2012 CA 412), expert witness on behalf of Romo plaintiffs.
2013-2014	*LULAC v. Edwards Aquifer Authority*, U.S. District Court for the Western District of Texas, San Antonio Division (No. 5:12cv620-OLG,), consultant and expert witness on behalf of the City of San Antonio and San Antonio Water District
2013-2014	*Veasey v. Perry*, U. S. District Court for the Southern District of Texas, Corpus Christi Division (No. 2:13-cv-00193), consultant and expert witness on behalf of the United States Department of Justice.
2013-2015	*Harris v. McCrory,* U. S. District Court for the Middle District of North Carolina (No. 1:2013cv00949), consultant and expert witness on behalf of the Harris plaintiffs. (later named *Cooper v. Harris*)
2014	Amicus curiae brief, on behalf of neither party, Supreme Court of the United States, *Alabama Democratic Conference v. State of Alabama*.
2014- 2016	*Bethune-Hill v. Virginia State Board of Elections*, U. S. District Court for the Eastern District of Virginia (No. 3:2014cv00852), consultant and expert on behalf of the Bethune-Hill plaintiffs.
2015	Amicus curiae brief in support of Appellees, Supreme Court of the United States, *Evenwell v. Abbott*
2016-2017	*Perez v. Abbott*, U. S. District Court in the Western District of Texas (No. 5:11-cv-00360). Exert witness on behalf of Rodriguez intervenors.
2017-2018	*Fish v. Kobach*, U. S. District Court in the District of Kansas (No. 2:16-cv-02105-JAR). Expert witness of behalf of the Fish plaintiffs.
2020	*Voto Latino, et al. v. Hobbs*, in the U.S. District Court for the District of Arizona (No. 2:19-cv-05685-DWL).
2020	*Wood v. Raffensperger*, in Fulton County, Georgia, Superior Court, (No. 2020CV342959).
2021	Consultant to the Arizona Independent Redistricting Commission.
2021	*Johnson v. Wisconsin Elections Commission*, in the Wisconsin Supreme Court, (No. 2021AP1450-AO).
2022	*Harkenrider v. Hochul*, No. E2022-0116CV (N.Y. Sup. Ct. 2022). Expert witness on behalf of the Senate Majority Leader.
2022	*Black Voters Matter Capacity Building Institute, Inc. v. Lee*, No. 2022-ca-000666 (Fla. Cir. Ct. 2022). Expert witness on behalf of the Black Voters Matter Capacity Building Inc. Plaintiffs.